HITACHI

SERVICE MANUAL

PAL/SECAM/NTSC

YK | No. 0462E

CMT2179 -081 -081S -191 -192 -192S

S2-M3 Chassis

2488

H.S.E
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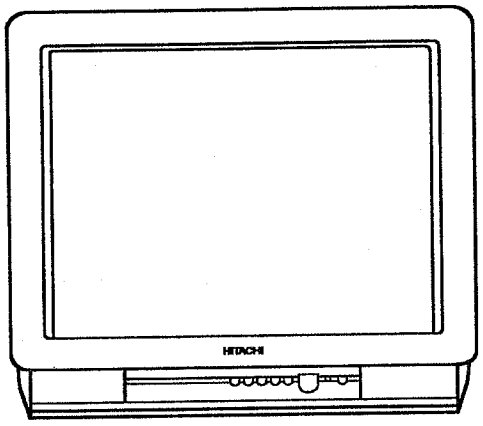

CAUTION: Before servicing this chassis, it is important that the service technician reads the "Safety Precaution" and "Product Safety Notices" in this Service Manual.

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SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

COLOR TELEVISION

March 1994 Consumer Electronics Division

2488

SAFETY PRECAUTIONS

WARNING: The following precautions should be observed.

1. Do not install, remove, or handle the picture tube in any manner unless shatter proof goggles are worn. People not so equipped should be kept away while picture tubes are handled. Keep the picture tube away from the body while handing.
2. When service is required, an isolation transformer should be inserted between power line and the receiver before any service is performed on the chassis.
3. When replacing the chassis in the cabinet, ensure all the protective devices are put back in place, such as barriers, non-metallic knobs, adjustment or compartment covers or shields, isolation resistors/capacitors, etc.
4. When service is required, observe the original lead dressing. Extra precaution should be taken to assure correct lead dressing in the high voltage circuitry area. Particularly note the R.G.B. lead dressing. Ensure they are dressed well away from the horizontal scan and F.B.T. circuitry.
5. Always use the manufacturer's replacement component. Always replace original spacers and maintain lead lengths. Especially critical components are indicated thus ⚠ on the parts list and should not be replaced by other makes. Furthermore, where a short circuit has occurred, replace those components that indicate evidence of overheating.
6. Before returning a serviced receiver to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the instrument by the manufacturer has become defective, or inadvertently damaged during servicing. Therefore, the following checks are recommended for the continued protection of the customers and service technicians.

INSULATION

Insulation resistance should not be less than 10MΩ at 500V DC between the mains poles and any accessible metal parts. Also, no flashover or breakdown should occur during the dielectric strength test, applying 3kV AC or 4.25kV DC for two seconds between the main poles and accessible metal parts.

HIGH VOLTAGE

High voltage should always be kept at the rated value of the chassis and no higher. Operating at higher voltages may cause a failure of the picture tube or high voltage supply, and also, under certain circumstances could produce X-radiation moderately in excess of design levels. The high voltage must not, under any circumstances, exceed 28kV on the chassis.

X-RADIATION

TUBES: The primary source of X-radiation in this receiver is the picture tube. The tube utilised for the above mentioned function in this chassis is specially constructed to limit X-radiation.

For continued X-radiation protection, replace tube with the same type as the original HITACHI approved type.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in HITACHI television receivers have special safety related characteristics. These characteristics are often not evident from visual inspection, nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified by marking with a ⚠ on the schematics and replacement parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create electrical shock, fire, X-radiation, or other hazards.

Product Safety is continuously under review, and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies of HITACHI Service Manuals, may be obtained at a nominal charge from your HITACHI SALES CORPORATION.

TUBE DISCHARGE

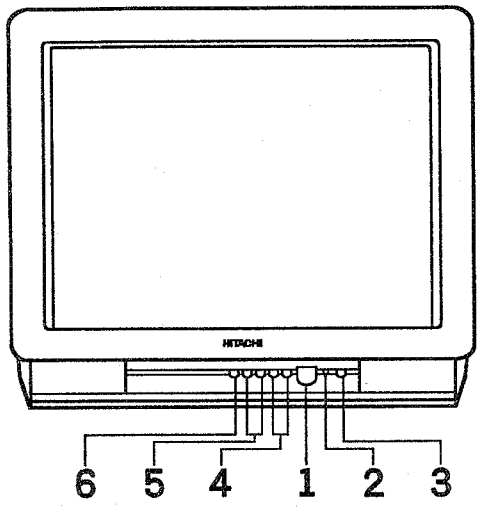
The line output stage can develop voltages in excess of 25kV; if the E.H.T. cap is required to be removed, discharge the anode cap to chassis via a high value resistor, prior to its removal from the tube.

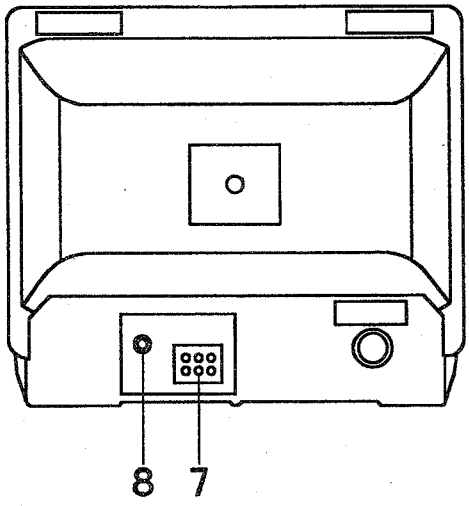
SPECIFICATIONS

Reception system	625-lines B.G/I/D.K/H PAL B.G/D.K/K' SECAM NTSC50 525-lines M/NTSC NTSC3.58-5.5/6.0/6.5 NTSC4.43-5.5/6.0/6.5 PAL60	Aerial input	75 OHM COAXIAL IEC TYPE
		Color picture tube	A51JFC61X(H)
		Speaker	9cm×5cm(×2)
		Sound output	3W×2
		Power supply	AC100-260V, 50/60Hz
Channel coverage (Frequency range 45MHz~294MHz 470MHz~863MHz)	CCIR : E2~12, E21~69, 01~3, S1~10, S11~20 OIRT : R1~12, R21~69 JAPAN : J1~12, J13~62 U.S.A. : US2~13, J~W, US14~69 Hong Kong, U.K. : UK21~69 China : C1~12, C13~57	Power consumption	89W(081, 081S) 82W(OTHERS)
		Weight (kg)	22
		Dimensions W×H×D (cm)	51.7×45.6×48.0
		Country of manufacture	Singapore

※ Specifications are subject to change without notice to improve performance.

CONTROLS





1 POWER switch

2 Remote control receiver

3 Power indicator (Stand-by)

4 Programme up/down

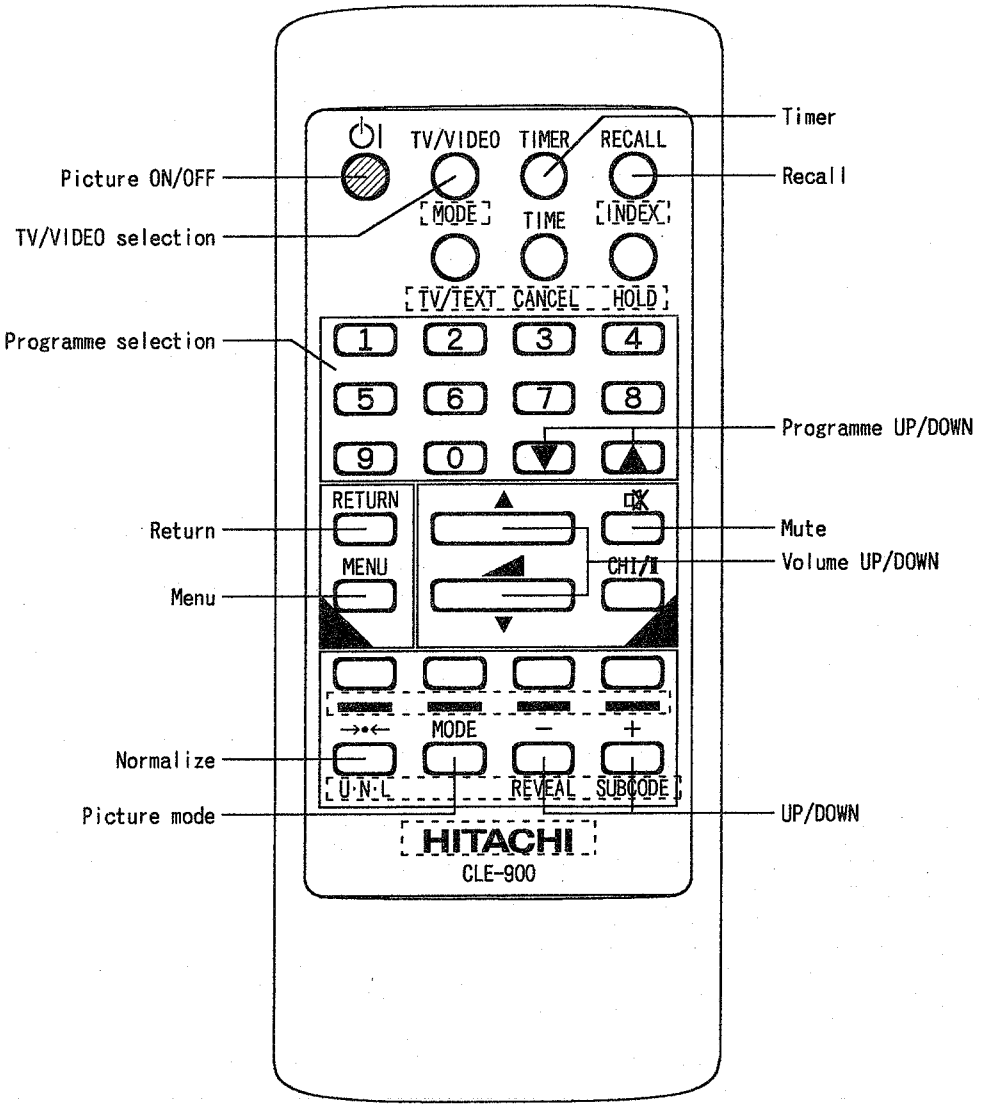
5 Volume up/down

6 TV/VIDEO selection

7 AV in/out terminals

8 Aerial input terminal

REMOTE CONTROL UNIT



CIRCUIT DESCRIPTION

Tuner and I.F Stages :

The tuner used on this chassis, is powered by the +9V, supply, and covers VHF, UHF and CABLE.
The I.F. output from the tuner is applied to amplifier Q201 then selected with the mode shown in Table 1 and input to CP201 or CP202.

Sound I.F Stages :

The sound stages consist of IC201, which is basically a demodulator, and IC402, which is the audio controlar and IC4501, which is the output amplifier.
The I.F. signal at the collector of Q201, is fed via filter CP201, and input to IC201 at pins 45 and 46.
The composite signal output from pin 7 of IC201 is input to sound filters MF401, MF402, MF403 and MF404, and selected with the mode shown in Table 1 at IC451 after being output from the filter. The selected signal is then input to pin 5 of IC201 via C422.
Demodulation is then performed by the IC, with the sound output being obtained from pin 1. This sound signal is controled by IC402. It is then input to pins 2,5 of IC4501 via C408, C409 for further amplification, and output to the speaker from pins 7, 12.
Volume control is performed by the DC voltage applied to pin 5 of IC201. This is obtained via R427 from pin 8 of IC1101.
Sound demodulation output at pin 1 of IC201, is applied to the terminal of rear via Q401. From the output terminal, the audio signal can be output to external equipment if desired.
Audio signals from external equipment can be applied to the input terminal of rear. They are then input to IC201 at pin 6.
When connecting audio signals this way, a "High" is applied to pins 16 of IC201 from IC1101, thereby changing the internal switching circuitry of the IC. The audio input applied to pin 6 of IC201. Volume control of the external audio signal is then obtained in the same way as internal sound i.f. by the voltage at pin 5 of IC201.

B·G/D·K	M/I	Saw filter	Sound filter	Sound trap
H	H	CP202	MF401(4.5MHz)	MF503
L	H	CP201	MF402(5.5MHz)	MF501/ MF502
H	L		MF403(6.0MHz)	
L	L		MF404(6.5MHz)	

Table 1.

Vision I.F Stages :

The I.F. signal from CP201 and CP202 is input to pins 45 and 46 of IC201. These pins supply an internal amplifier consisting of three stages whose gain is controlled by the AGC circuit.
The response speed of this internal AGC stage is determined by the external components connected to pin 48.
The output from the I.F. amplifier is then fed to the video detector circuitry. The picture carrier is limited and phase shifted by the tank circuitry of L202 etc., connected between pins 2 and 3 of the IC. This produces a reference frequency which is utilised for synchronous video detection.
An RF AGC voltage is made available at pin 48 of IC201, the starting level of which is determined by the voltage applied to pin 49, which in turn is fixed by the setting of VR202. This AGC voltage is then fed to the tuner via R208 to control its gain accordingly.
The composite video finally emerges at pin 7 of IC201.

Luminance Circuitry :

The composite video signal output from pin 7 of IC201 is applied to the sound rejection filter MF501, MF502, and MF503. MF501, MF502 and MF503 are selected with the mode shown in Table 1. The resulting luminance signal is applied to the terminal of rear, for output to external equipment if desired. It is then returned to pin 13 of IC201 via Q506, for colour decoding and deflection synchronisation.
The luminance signal is added internally to the R.G.B. matrix circuits of IC201, as well as being controlled by the brightness, contrast, and blanking stages of the IC.
The luminance signal finally emerges with the R.G.B. signals from pins 18, 19 and 20 of IC201.
The voltages to control the contrast and brightness levels are output from pins 3 and 4 of IC1101, then applied to pins 17 and 25 of IC201.
An automatic beam current circuit is employed on this chassis. Should the beam current start to rise, the voltage at pin 4 of the flyback transformer will fall. This fall is applied to the cathode of D758, then via R760 to pin 25 of IC201, thereby reducing the contrast level and hence the beam current.
Video inputs from external equipment connected to the terminal of rear, are fed to IC201 pin 15 via Q510.
When the external mode is selected, a "High" is applied to pin 16 of IC201.

Chrominance Circuitry :

IC201 is designed to demodulate PAL, NTSC and SECAM systems. And this IC can distinguish between PAL, NTSC or SECAM signals.
The demodulated colour signals are output from IC201 pins 30 and 31 as the R-y and B-y signals, then fed to pins 14 and 16 of IC501 which is a switch capacitor delay line.
IC201 allows bi-directional communication between the SECAM decoder IC502 and automatic system manager for SECAM identification. It delivers the VCXO (voltage controlled xtal osillator) reference freguency (4.43MHz only) to the SECAM decoder via pin 32 of IC201. Once SECAM is identified, the gated reference signal is outputted to pin 32 of IC201.
The inputs at pins 14 and 16 are clamped, then fed via a buffer stage to internal delay lines, which are driven by a clock signal of 3MHz to obtain a delay period of 640 Seconds. This internal clock is generated from a 6MHz voltage controlled oscillator, and line locked by the sandcastle pulse input at pin 5. Low pass filters after the delay line stages suppress the clock signals.
The undelayed and the delayed signals are then added, with the resulting R-y and B-y signals being output from pins 11 and 12 via an internal buffer stage.
These outputs are then fed to IC201 at pins 28 and 29.
This IC contains clamping circuits, and a DC colour saturation control, the level of which is set by the voltage applied to pin 26 from pin 5 of IC1101. The signals are then applied to a MATRIX circuit, and finally emerge from pins 18, 19 and 20 as the blue, green, and red signals.

Deflection Circuits :

The deflection circuitry of IC201 contains a sync, separator stage, horizontal oscillator and output stages, a vertical count-down and output stage.

Horizontal Stage :

The composite video signal from pin 7 of IC201 is returned to pin 13 via C302 as explained previously. This input is applied to the internal sync. separator stages of the IC.
A internal phase detector stage is provided with a sawtooth waveform, generated from the line pulse input to pin 38. The phase detector will then compare this sawtooth waveform to the sync. pulse. Any frequency drift will cause a corrective output to be applied to the horizontal oscillator, thereby maintaining the desired phase relationship.

The components connected to pin 40 form a filter network for the phase detector, and VR701/connected to pin 39 provides manual phase control. The horizontal output emerges at pin 37 and is then applied to the base of line drive transistor Q721, T721 couples the output of Q721 to the line output transistor Q781. Both these transistors are powered by the 95V supply.
A line pulse available at pin 6 of the flyback trasformer is rectified by D751, smoothed by C756 and provides approximately 180V to drive the output transistors Q851, Q852, Q853.
Under certain fault conditions, i.e. increased H.T. supply, low line oscillator frequency, or reduced value of the tuning capacitor C781, an excess of E.H.T. could be developed. To prevent this happening, the rectified voltage of D751 is fed via potential divider R757, R758, and applied to ZD751. Should the E.H.T. rise excessively, the threshold of the zener will be exceeded, and a voltage will be applied to pin 35 of IC1101 via R1106, thereby shutting down the power circuit.
This effectively applies a "Low" to Q903 base, turning the transistor off. Consequently, Q902 will be turned off, and the +8V supply to IC201 is then removed, thereby shutting down the deflection stages of the IC, preventing further E.H.T. generation.
Excessive beam current can also occur under certain fault conditions, so this is prevented in the following manner.
The H.T. current to the horizontal output stages is measured by R781.
Should the current rise, the voltage drop across R781 will increase, and a voltage will be applied to the gate of Q901. This will then prevent further E.H.T. generation as described earlier.
A supply of +25V is required for IC681. This is obtained from pin 1 of the flyback transformer, and smoothed by C754.

Vertical Stages :

The internal vertical sync. of IC201 is fed to a triggered vertical divider stage, which counts down the horizontal frequency to obtain the vertical frequency, thereby eliminating the need for a conventional oscillator circuit.
This also has the advantage that no external frequency control is required.
C601 at pin 42 of the IC is used for ramp generation, and produces the required sawtooth output.
The vertical output from pin 43 of IC201 is applied to pin 4 of IC681 via R604. The components D601 and C605 determine the flyback generation time, and the vertical output to drive the deflection coils is made available from pin 2.
The deflection current that occurs at the junction of R609, is added to the feedback from R607/C608 etc. and the result is applied to pin 41 of IC201. The values of R607 and C608 determine the linearity, whilst VR601 sets the vertical height.

Power Supply Circuit :

AC input is rectified by D901-04 and produces approximately 300V to pin 3 of IC901.
Current flowing through R902-03, C905, causes power transistor in IC901 to initially turn on.
Secondary voltages are then induced in T901, and a feedback voltage is obtained via C910, R905 etc. and applied to pin 2 of IC901, thereby maintaining the transistors operation.
Secondary voltage in F1·F2 winding is rectified by D905 to produce H.T. of 95V which is smoothed by C914.
S1·S2 winding produces 14V from D908, and this is smoothed by C916.
Pin 5 of IC901 is set to a pre-determined level by resistor network in IC901. Should the H.T. rise, pin 5 voltage of IC901 will become more positive, and this difference is amplified by transistor in IC901. An output is applied to drive transistor, and controls on time of power transistor. In this way, the H.T. is regulated and maintained at a constant level.
D909 offers protection to the H.T. circuits should the voltage level rise excessively.
When the standby mode is selected, pins 21 and 22 of IC1101 will go "Low", removing the drive to Q903. As a result, Q902 is turned off, and voltage to pin 36 of IC201 disappears, therefore shutting down the deflection stages of the IC.
E.H.T. generation will then cease for as long as the standby condition existe.

Remote Control and Tuning Circuitry :

The remote control receiving unit CP1201, contains an infrared amplifier type SPS409. This is powered by the +5V supply, which is stabilized by ZD1101. The output from pin 2 of this unit is applied to pin 16 of IC1101.

This IC type M37210M4, performs channel selection. UP/DOWN analogue control, an screen display, search tuning, and controls inputs and search tuning, and controls inputs and outputs to and from the AV terminal.

IC1102 is the memory IC, which stores the data relating to the above functions, then transfers that information to IC1101 when required. Both these ICs are powered by the +5V supply.

X1101 supplies IC1101 with a basic clock frequency which controls all operating mode requirements.

When the TV is first switched on, IC1101 must be initially reset, and this is achieved by IC1101 stage. As the +5V supply begins to rise from switch on, pin 3 of Q1105 is held "Low". This is applied to pin 30 of IC1101 thus resetting the IC. Once pin 1 of Q1105 has almost reached its +5V potential, the "Low" is removed from pin 3 thus releasing the reset condition.

When the search routine has been initiated and a signal has been located, pin 14 of IC201 will become "High". This is applied to pin 34 of IC1101, and informs the IC that a signal is present. The search routine then stops, and the IC will monitor the AFC signal present at pin 15 to obtain the optimum signal.

Pins 46 and 47 control the signal system.

Contrast, colour, brightness, sharpness, tint, and volume are all controlled from the remote control handset (the volume can also be adjusted by + and − buttons on the front of the TV), and will produce DC level changes from pins 3~8 of IC1101, which are then fed to the relevant pins of IC201.

Pins 31~32, 37~39, and 11 from the in and out matrix for the front control operations.

Pins 12 and 13 are the clock and data output pins. These signals are supplied to the memory IC1102.

It is supplied to pin 16 of IC201. When "High", the IC will process external inputs applied to pins 13 and 15, and when "Low", the internal signals are processed.

The handset button marked TV/VIDEO will need to be pressed. This will then produce the required "High" from pin 20 to achieve the necessary switching, as explained earlier.

The red, green and blue on-screen display signals are output from pins 50, 51 and 52. The components L1102, C1102, and C1103, on pins 28 and 29, determine the display oscillator frequency. The horizontal and vertical inputs at pins 1 and 2 determine the actual position of the on screen display.

When a command requiring an on-screen display is received by IC1101, a "High" will be output from pin 49.

This is applied to pin 21 of IC201, and blanks out a portion of the picture. The on-screen display information is then inserted into this portion, thus resulting in a clear display.

When the ALARM mode has been set, and the time input has elapsed, an output is obtained from pin 45 of IC1101.

This is then applied via R1184, R1119, C1111, R1118 etc. to pins 2 and 5 of IC4501 thus causing a "Bleep" sound to be heard.

Once the "OFF" timer mode has been set, and the time input has elapsed, pins 21 and 22 of IC1101 output a "Low".

This removes the supply to the base of Q903, and as a result the +9V output of Q902 disappears. This places the TV into its standby mode of operation by removing E.H.T. generation as explained previously.

When the "ON" time has been estimated and set, the standby command must be transmitted by the handset, to place the TV into its standby mode. As an indication that the standby mode is only temporary, pin 20 of IC1101 is taken "High" and "Low" alternately, causing D1114 to flash on and off.

When the entered time has elapsed, the "Low" outputs from pins 21 and 22 of IC1101 are removed, and the TV will return to normal operation.

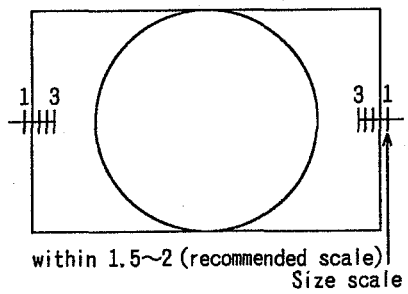
AGC ADJUSTMENT

ADJUSTMENT LOCATION VR202

Preparations for adjustment	Adjustment Procedure	Remarks
1 With the signal received, apply heat run for more than two minutes to avoid the influence of circuit tempereture drift. 2 Connect the voltmeter of at least 100kΩ internal impedance to the AGC terminal of the tuner.	1 Received following channel and strength. CHANNEL : CCIR 5 STRENGTH : -47 dBm Adjust VR202 until the following voltage is reached. V1−(0.5v±0.2v) 2 V1:the voltage without signal	

HORIZONTAL CENTER POSITION ADJUSTMENT

ADJUSTMENT LOCATION VR701

Preparations for adjustment	Adjustment Procedure	Remarks
1 Receive the circle pattern signal. 2 Set the brightness and contrast VRs to maximum.	1 Turn VR701 (H. Phase) and adjust so that size scales on the left and right are equal. (Refer to Fig. 3-2-1.)  Fig. 3-2-1	Picture information amount The amount of information means the amount of the transmitted picture that can be displayed on the CPT screen. It is necessary to increase this amount of information as much is possible and also decrease the lack of raster as far as possible.

VERTICAL AMPLITUDE ADJUSTMENT

ADJUSTMENT LOCATION VR601

Preparations for adjustment	Adjustment Procedure	Remarks
1 Start adjustment 5 minutes or more after the power switch is tunred on. 2 Receive the PAL circle pattern signal. 3 Set the brightness and contrast VRs to maximum. 4 Place the set facing north or south.	1 Select V.CENT select chip "u", "N" and "D" so that the center of the picture is closest to the geometrical center of the CPT. 2 Adjust VR601 as shown in Fig. 3-3-1. 3 Receive the NTSC circle pattern signal and check that the picture is the same as that when a PAL signal is received.	

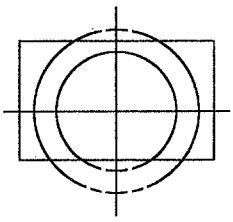
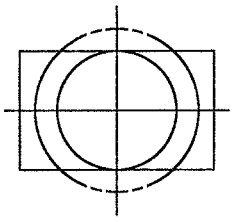
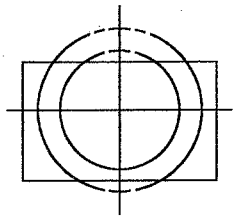
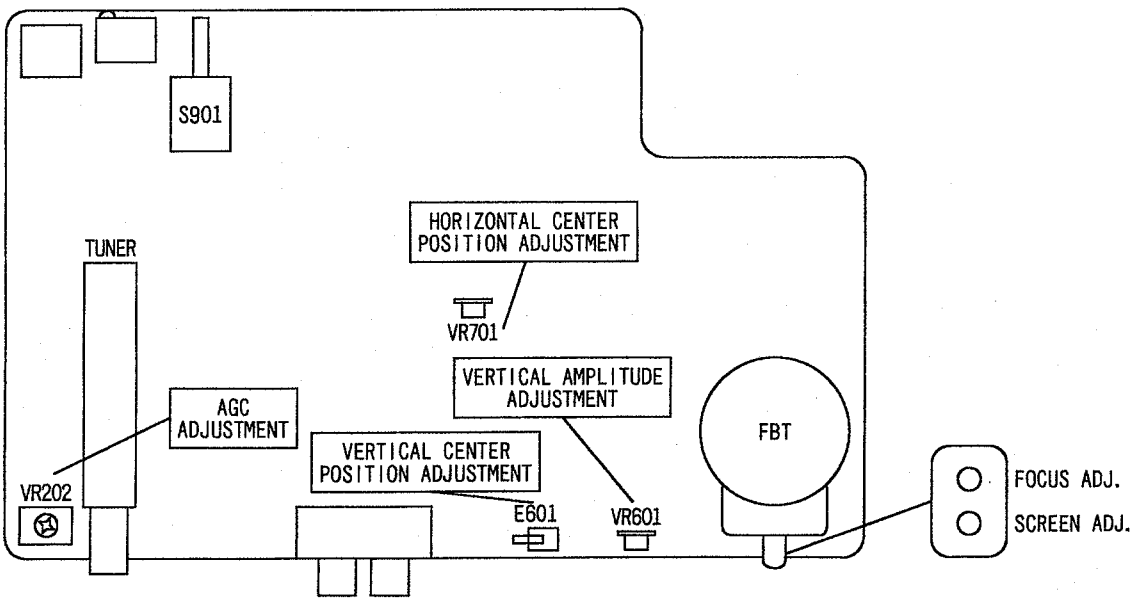
		Top shrinked, bottom expanded	Standard condition	Top expanded, bottom shrinked
Picture condition				
Adjustment method	Picture top	Center of inner and outer circles	Center of inner circle	
	Picture bottom		Inner circle	Center of inner and outer circles

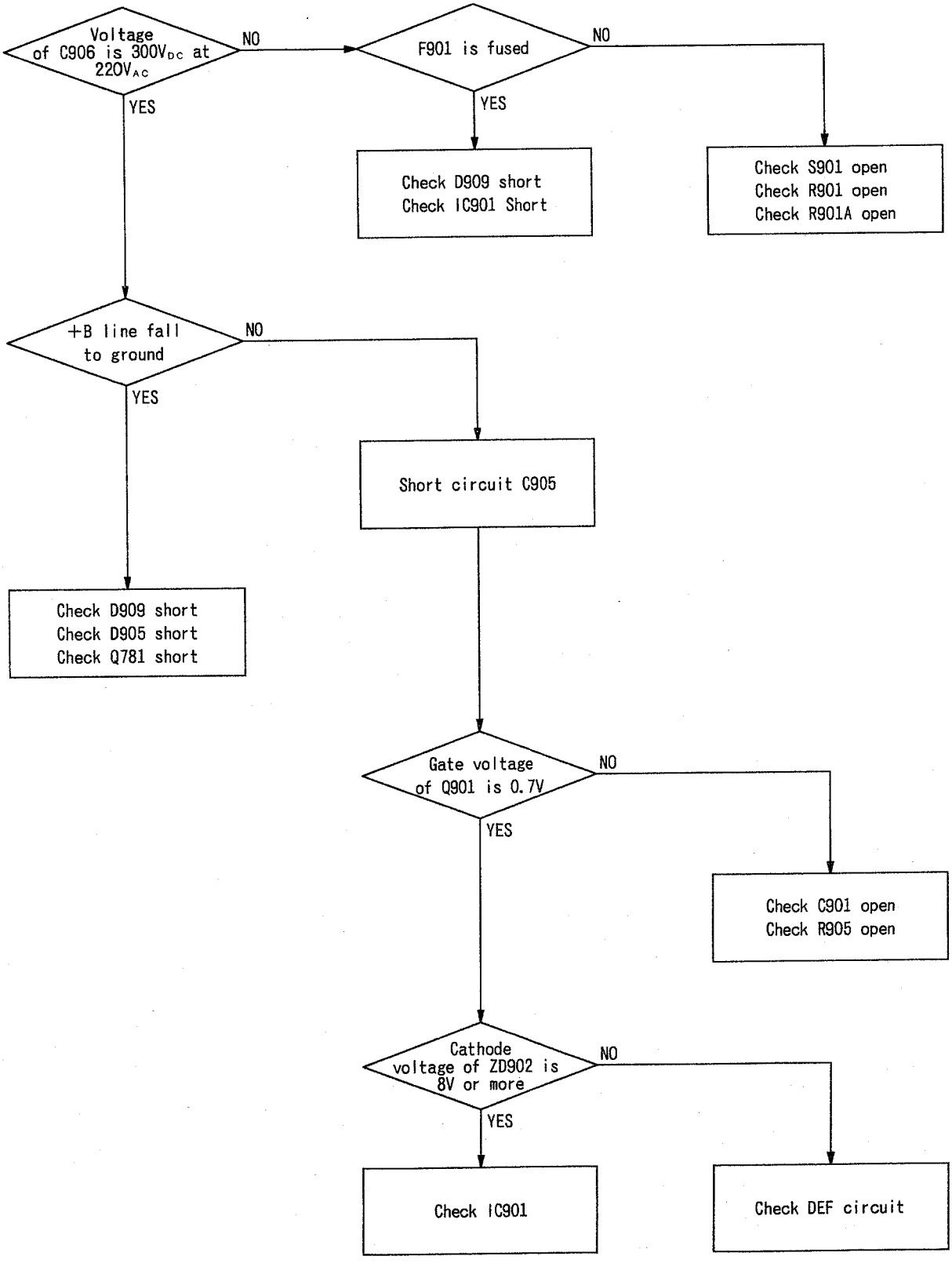
Fig. 3-3-1

ADJUSTMENT POINT

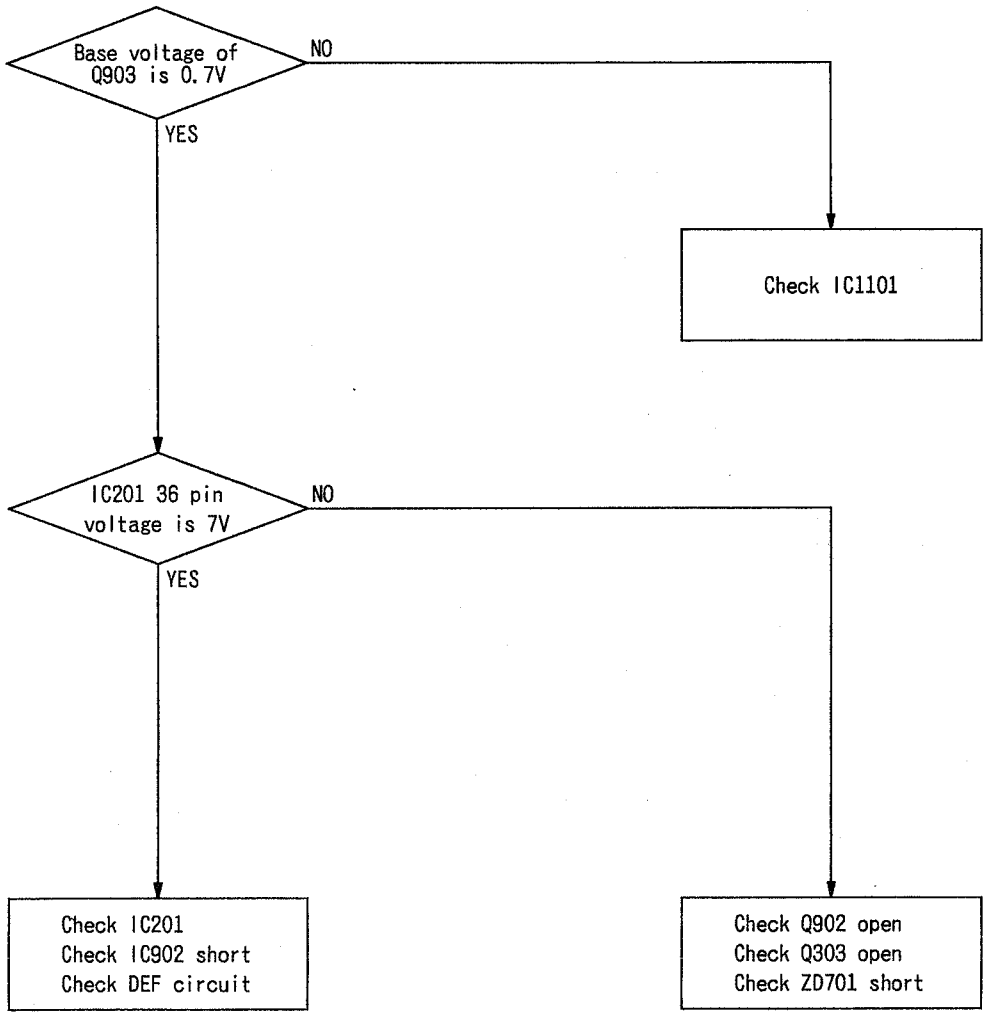


TROUBLE SHOOTING

No +B



TV SET DOES NOT GO TO ON FROM STAND-BY MODE



VOLTAGES OF CHECK POINTS

IC001

Pin No.	1	2	3	4	5	6	7	8	9
PAL	8.8	0	4.6	0	0	0	0	8.4	9
SECAM	0	8.9	4.8	4.6	0	8.7	0	7	9
NTSC	8.8	0	4.6	0	0	0	0	8.4	9

IC1101

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
PAL	0.4	5.4	1.8	3.8	1.8	1.8	7.5	1.4	0	0	5.2	5.2	0	3.7	3	5.2	5.2	5.3	5.2	5.2	5.1	0	0	2.5	2.2	0	0	4.9	4.7	5.2	5.2	5.2
SECAM	0.4	5.4	1.8	3.8	1.8	1.8	7.5	1.4	0	0	5.2	5.2	0	3.2	2.4	5.2	5.2	5.3	5.2	5.2	5.1	0	0	2.5	2.2	0	0	4.7	4.7	5.2	5.2	5.2
NTSC	0.4	5.3	1.8	3.7	1.5	1.8	2.8	1.4	0	0	5.2	5.2	0	2.3	3	5.2	5.2	5.2	5.2	5.2	5.1	0	0	2.5	2.2	0	0	4.7	4.8	5.2	5.2	5.2

Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
PAL	0	0	0.2	0	5.2	5.2	5.2	5.2	0.1	4.8	0	0	0	5.1	0	5.2	0	0	0	0
SECAM	0	0	0.2	0	5.2	5.2	5.2	5.2	0.1	4.8	0	0	0	5.1	0	5.2	0	0	0	0
NTSC	5.2	0	0	0	5.2	5.2	5.2	0	0.1	0	0	0.1	0	5.2	5.2	0	0	0	0	0

IC1102

Pin No.	1	2	3	4	5	6	7	8
PAL	0	5.2	0	0	0	5.2	5.2	
SECAM	0	5.2	0	0	0	5.2	5.2	
NTSC	0	5.2	0	0	0	5.2	5.2	

IC201

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
PAL	3	6.1	6.1	8.3	2	3.9	3.3	1.8	0	8.2	0	3	4.2	2.2	3.4	0	3.6	2.5	2.6	2.7	0.1	3.5	3.4	3.4	2.5	2.2	5.8	0.2	3.9	1.5	1.5	1.7
SECAM	3	6.1	6.1	8.3	2	3.9	3.4	1.8	0	8.2	0	3	4.3	2.2	3.4	0	3.6	2.6	2.6	2.7	0.1	3.6	3.4	3.4	2.4	2.2	5.7	3.9	3.9	2.9	3	4.5
NTSC	3	6.1	6.1	8.2	2	3.9	3.7	1.8	0	8.2	0	3.1	4.4	3.2	3.4	0	3.6	2.8	2.8	2.8	0.1	3.5	3.4	3.4	2	0.1	5.8	3.9	3.9	1.5	1.5	1.7

Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
PAL	4.2	2	2	7.6	0	0.7	3.6	3.7	2.4	2.7	2	4.9	4.2	4.2	3.9	3.8	1.9	3.5	4.9	6.6
SECAM	4.2	2	2	7.6	0	0.7	3.6	3.7	2.4	2.7	2	4.6	4.2	4.2	3.9	3.8	1.9	3.5	4.9	6.6
NTSC	4.1	2	2	7.6	0	0.7	3.6	3.7	2.5	2.6	2	4.9	4.1	4.2	1.7	3.9	1.9	3.5	5.7	6.6

IC4501

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12
PAL	1.3	0	14	0	0	0.1	12	13	0	14	13	6.5
SECAM	1.3	0	14	0	0	0.1	12	13	0	14	13	6.5
NTSC	1.3	0	14	0	0	0.1	12	13	0	14	13	6.5

IC451

Pin No.	1	2	3	4	5	6	7	8	9
PAL	4.1	0.8	4.1	4.8	0	4.8	8.3	4.8	4.8
SECAM	4.1	0.8	4.1	4.8	0	4.8	8.3	4.8	4.8
NTSC	4.1	4.9	4.1	4.7	0	4.8	8.3	4.8	4.8

IC501

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PAL	4.8	0	0	0	0.7	0	0.2	0	4.8	0	3	3	0	1.3	0	1.3
SECAM	4.8	0	0	0	0.7	0	0.2	0	4.8	0	3	3	0	1.3	0	1.3
NTSC	4.8	0	0	0	0.7	0	0.2	0	4.8	0	3	3	0	1.3	0	1.3

IC502

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PAL	1.7	1.2	8	0	0	0	3.1	4.1	1.5	1.5	0	0	0	0	0.7	5.8
SECAM	4.5	1.2	8	0	0	0	3.1	4.3	2.9	3	0	0	0	0	0.7	5.8
NTSC	1.7	1.1	8	0	0	0	3.3	4.3	1.5	1.5	0	0	0	0	0.7	5.8

IC681

Pin No.	1	2	3	4	5	6	7
PAL	0	13.7	26	1.3	0	1.2	25
SECAM	0	13.7	26	1.3	0	1.2	25
NTSC	0	14.3	26	1.3	0	1.5	25

IC901

Pin No.	1	2	3	4	5
PAL	0	47	0.7	45	3.3
SECAM	0	47	0.7	46	3.3
NTSC	0	47	0.7	46	3.3

IC902

Pin No.	1	2	3	4	5	6
PAL	0.1	0	0	3.3	46	3.2
SECAM	0.1	0	0	3.3	46	3.2
NTSC	0.1	0	0	3.3	46	3.2

Q1101									Q1102								Q1104								Q1105								Q1106							
PAL			SECAM			NTSC			PAL			SECAM			NTSC		PAL			SECAM			NTSC		PAL			SECAM			NTSC		PAL			SECAM			NTSC	
B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	1	2	3	1	2	3	1	2	3	B	C	E	B	C	E
0.4	7.2	0	0.3	9.8	0	0.2	15	0	0.1	5.4	0	0.1	5.3	0	0.1	5.3	0	0.6	0.1	0	0.6	0.1	0	0.1	5.2	0	5.2	0	5	5.2	0	5	5.2	0	5	0.6	0.1	0	0.6	0.1	0	0.6	0.1	0

Q201							Q203						Q204						Q205					
PAL			SECAM			NTSC	PAL			SECAM			NTSC			PAL			SECAM			NTSC		
B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E
1.3	5.5	0.5	1.3	5.5	0.5	1.3	5.5	0.6	4.3	0.6	0	4.3	0.6	0	1.8	5	0	1.3	5	0	1.3	5	0	3.8	2	0	1.3	6.2	0	1.3	6.2	0	3.8	0.1	0

Q301							Q303					
PAL			SECAM			NTSC	PAL			SECAM			NTSC		
B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E
5.5	0.1	6.1	5.5	0.1	6.1	2.9	0	3.5	5.1	0	0	5.1	0	0	5.1	0	0

Q501							Q502						Q506						Q510					
PAL			SECAM			NTSC	PAL			SECAM			NTSC			PAL			SECAM			NTSC		
B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E
8.2	8.2	5.5	6.2	8.2	5.5	0.1	8.2	2.9	3.3	8.3	5.5	3.3	8.3	5.5	3.5	8.3	2.9	2.1	6.3	1.4	2.1	6.3	1.4	2	6.9	1.4	2	6.9	1.4	2	5.9	1.4

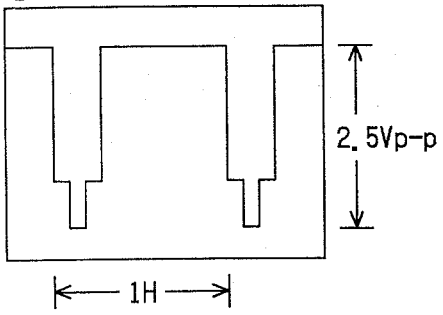
Q721									Q722								Q723								Q724								Q781							
PAL			SECAM			NTSC			PAL			SECAM			NTSC		PAL			SECAM			NTSC		PAL			SECAM			NTSC		PAL			SECAM			NTSC	
B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E
0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	1	1	5.4	1	1	5.4	1	1	5.4	9.7	1.1	8.1	9.7	1.1	9.1	9.7	1.1	9.1	11	0.2	11	11	0.2	11	11	0	11	1.4	1.9	1.4	1.4	1.9	1.4	1.4	1.9	1.4

Q801							Q851						Q852						Q853					
PAL			SECAM			NTSC	PAL			SECAM			NTSC			PAL			SECAM			NTSC		
B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E
9.1	0	9	9.1	0.1	9	9.1	2	9	2.6	123	2.1	2.6	123	2.1	2.7	116	2.3	2.5	121	2	2.5	123	2	2.7	113	2.2	2.5	131	2	2.5	127	2	2.7	123	2.2

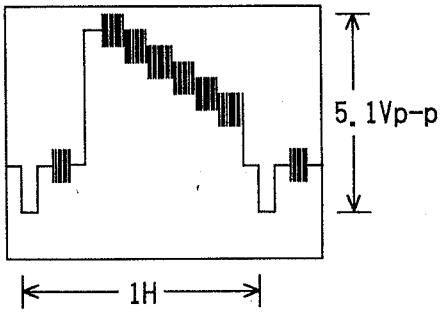
Q901									Q902								Q903								Q904								Q905							
PAL			SECAM			NTSC			PAL			SECAM			NTSC		PAL			SECAM			NTSC		PAL			SECAM			NTSC		PAL			SECAM			NTSC	
K	A	G	K	A	G	K	A	G	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E
0.1	0.1	48	0.1	0.1	48	0.1	0.1	46	14	14	14	14	14	14	14	14	14	6.7	0.1	0	0.7	0.1	0	0.7	0.1	0	14	14	14	14	14	14	14	14	14	0.7	0.1	0	0.7	0.1	0	0.7	0.1	0

WAVEFORMS

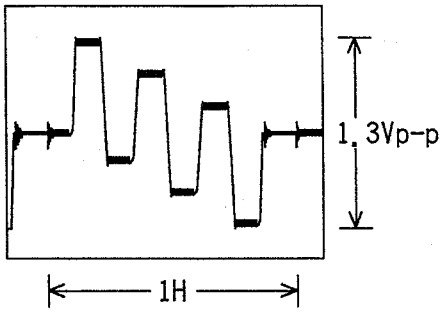
① IC201 ⑦ pin



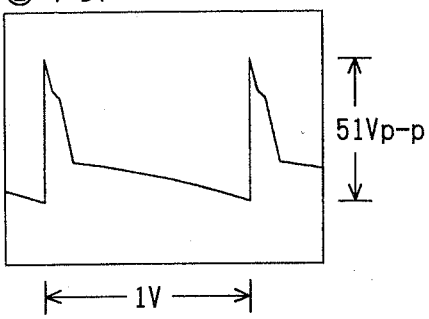
⑤ IC201 ⑳ pin



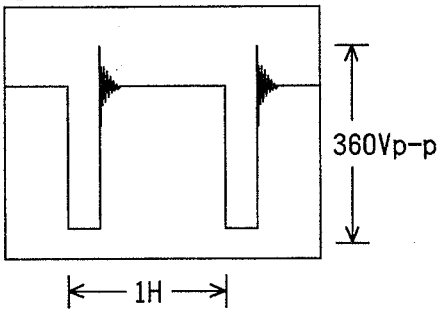
⑨ IC201 ㉘ pin



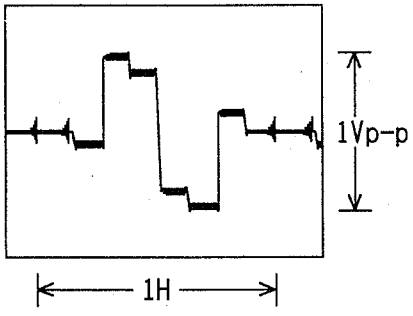
② V-DY



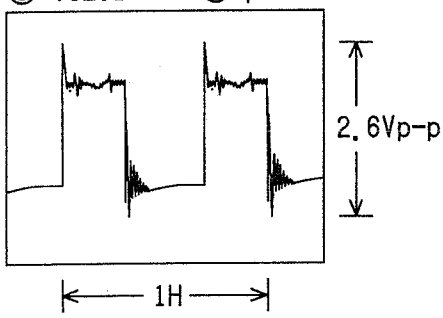
⑥ IC901 ③ pin



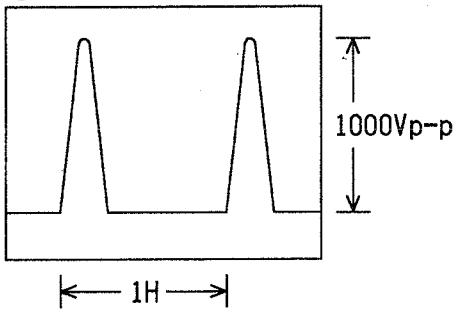
⑩ IC201 ㉙ pin



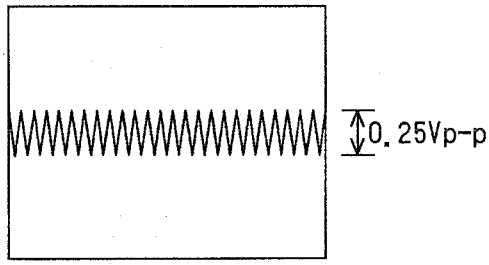
③ IC201 ㊲ pin



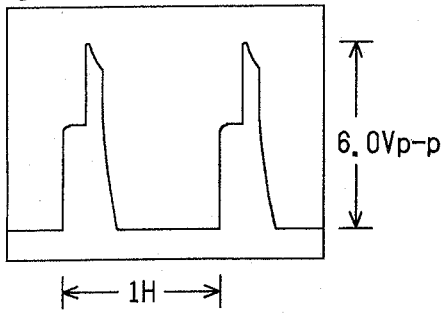
⑦ Q781 Collector



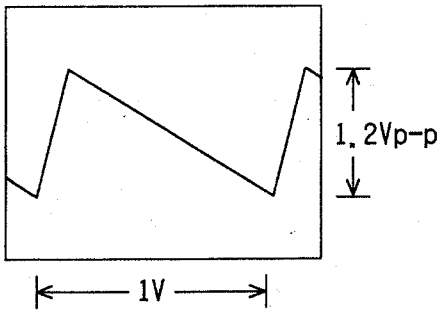
⑪ IC201 ㉜ pin NTSC/PAL



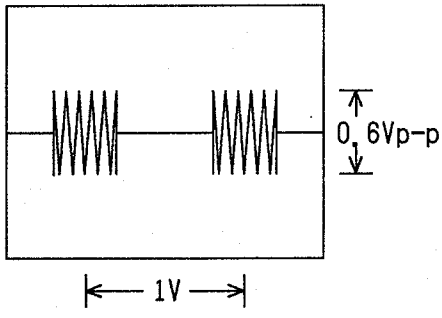
④ IC201 ㊳ pin



⑧ IC201 ㊶ pin



⑫ IC201 ㉜ pin SECAM

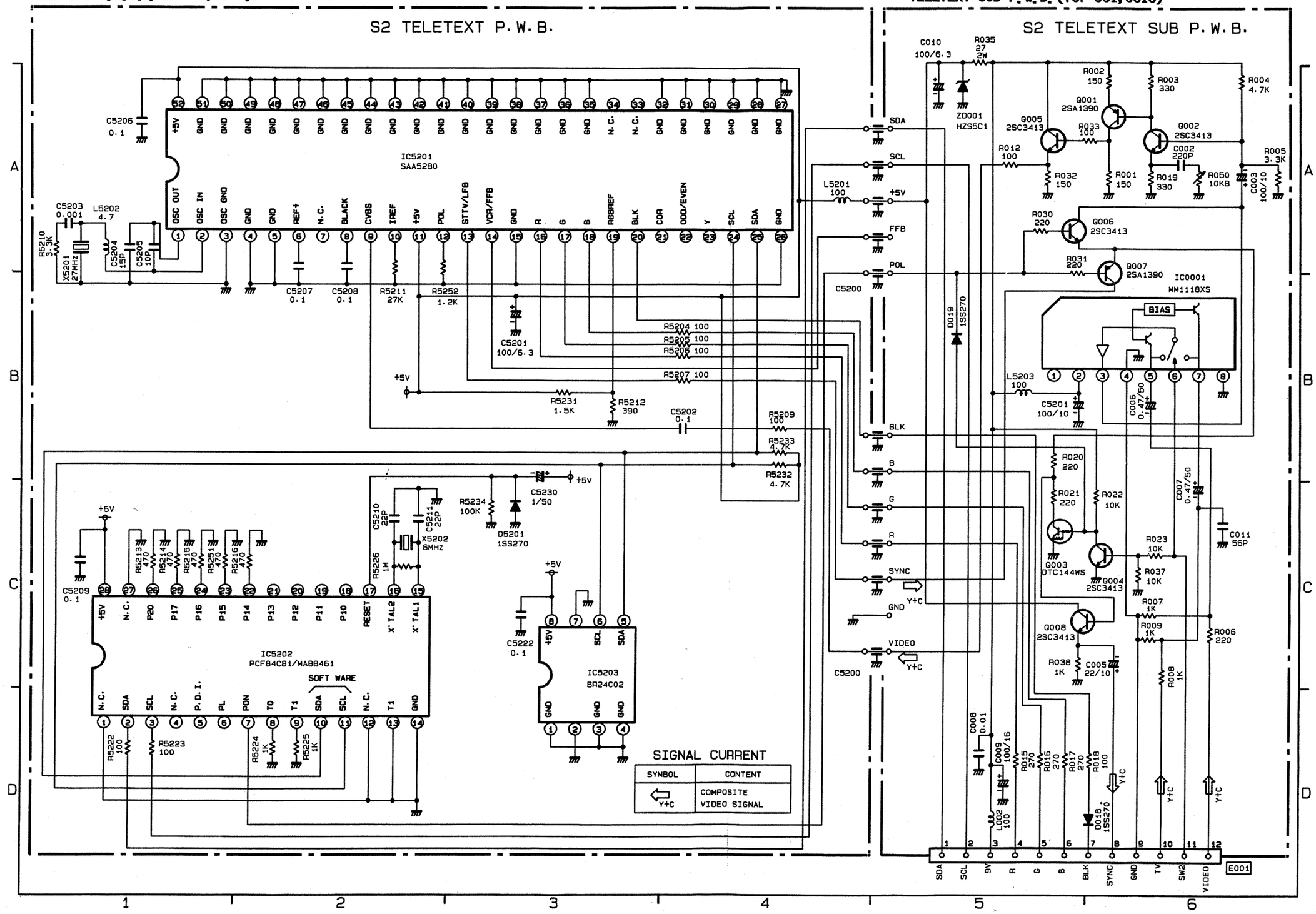


BASIC CIRCUIT DIAGRAM

PRODUCT SAFETY NOTE : Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

TELETEXT P.W.B. (for 081,081S)

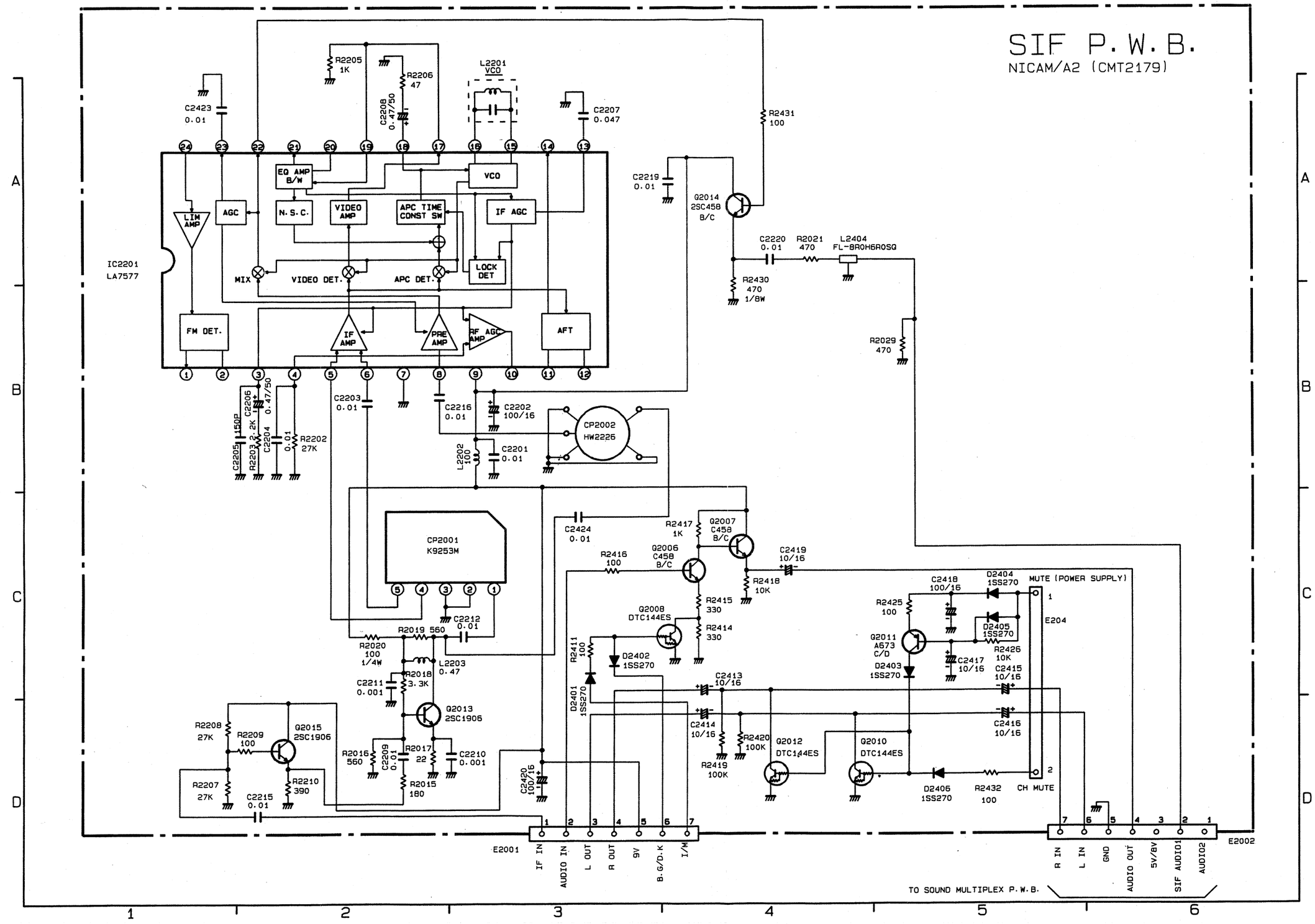
TELETEXT SUB P.W.B. (for 081,081S)



- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V).
  Voltage taken on a complex color bar signal including a standard color bar signal.

SIF P.W.B. (for 081,081S)

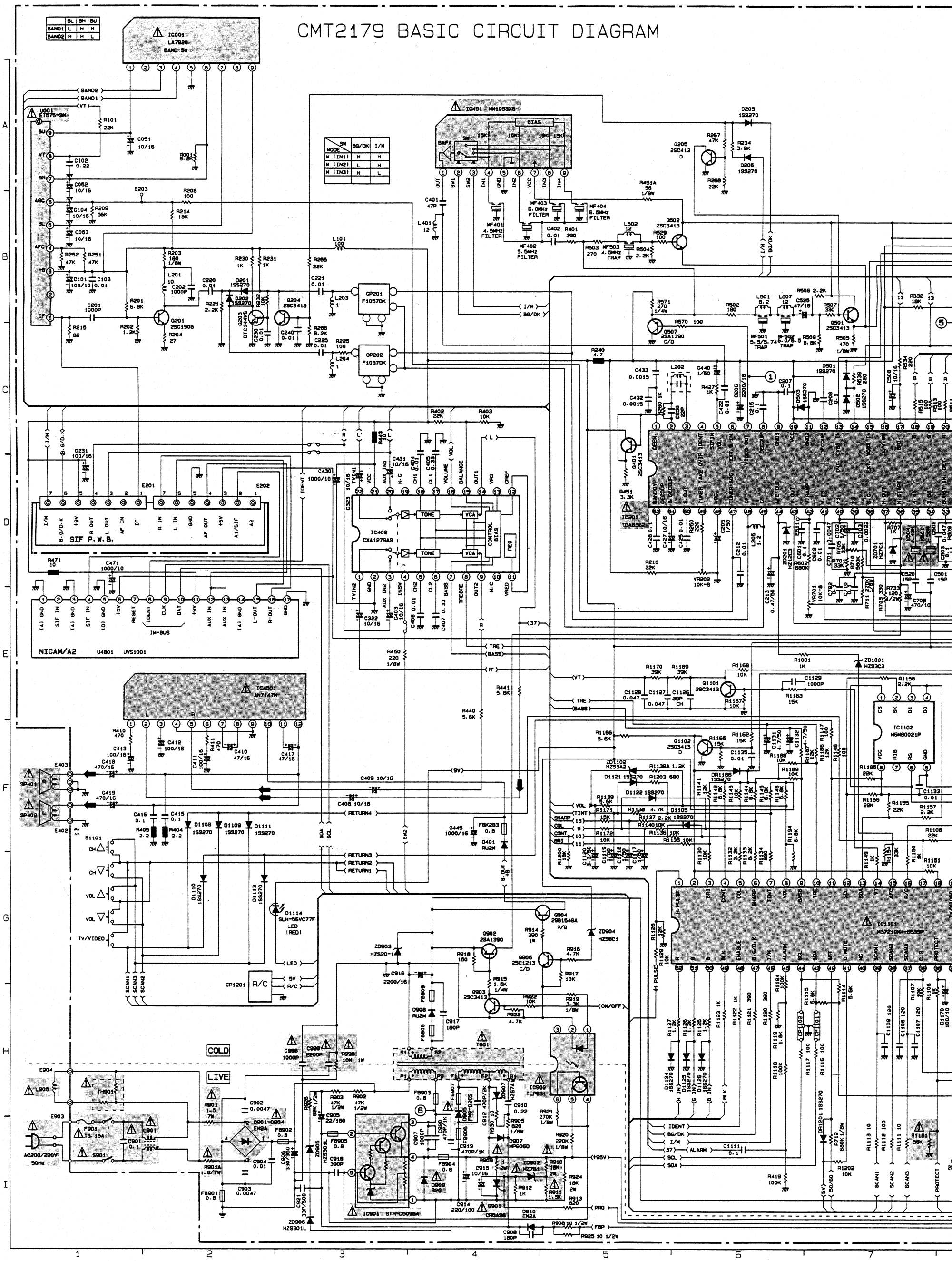
PRODUCT SAFETY NOTE : Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.



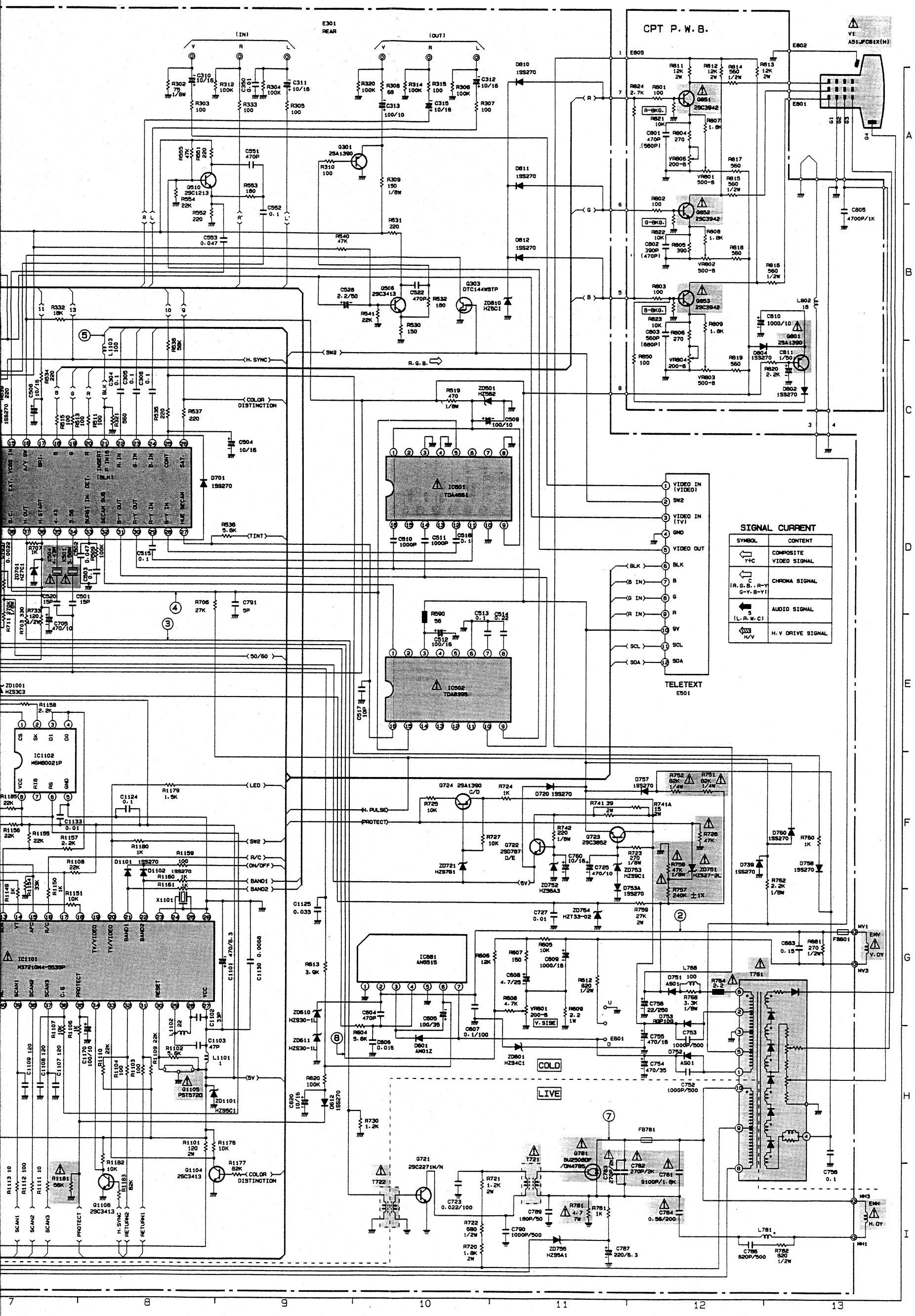
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V).
  Voltage taken on a complex color bar signal including a standard color bar signal.

MAIN P.W.B. (for 081,081S)

CMT2179 BASIC CIRCUIT DIAGRAM

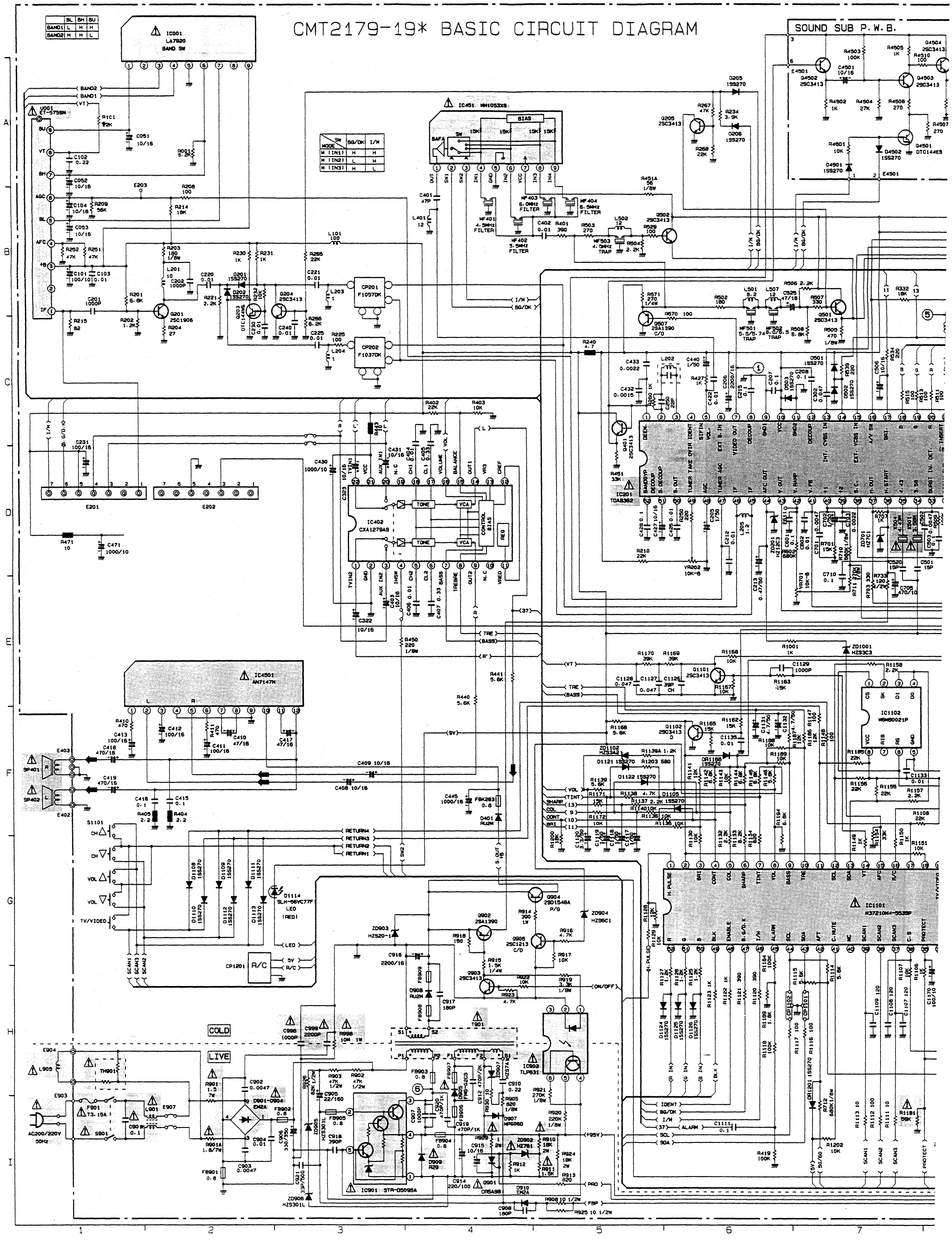


PRODUCT SAFETY NOTE : Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

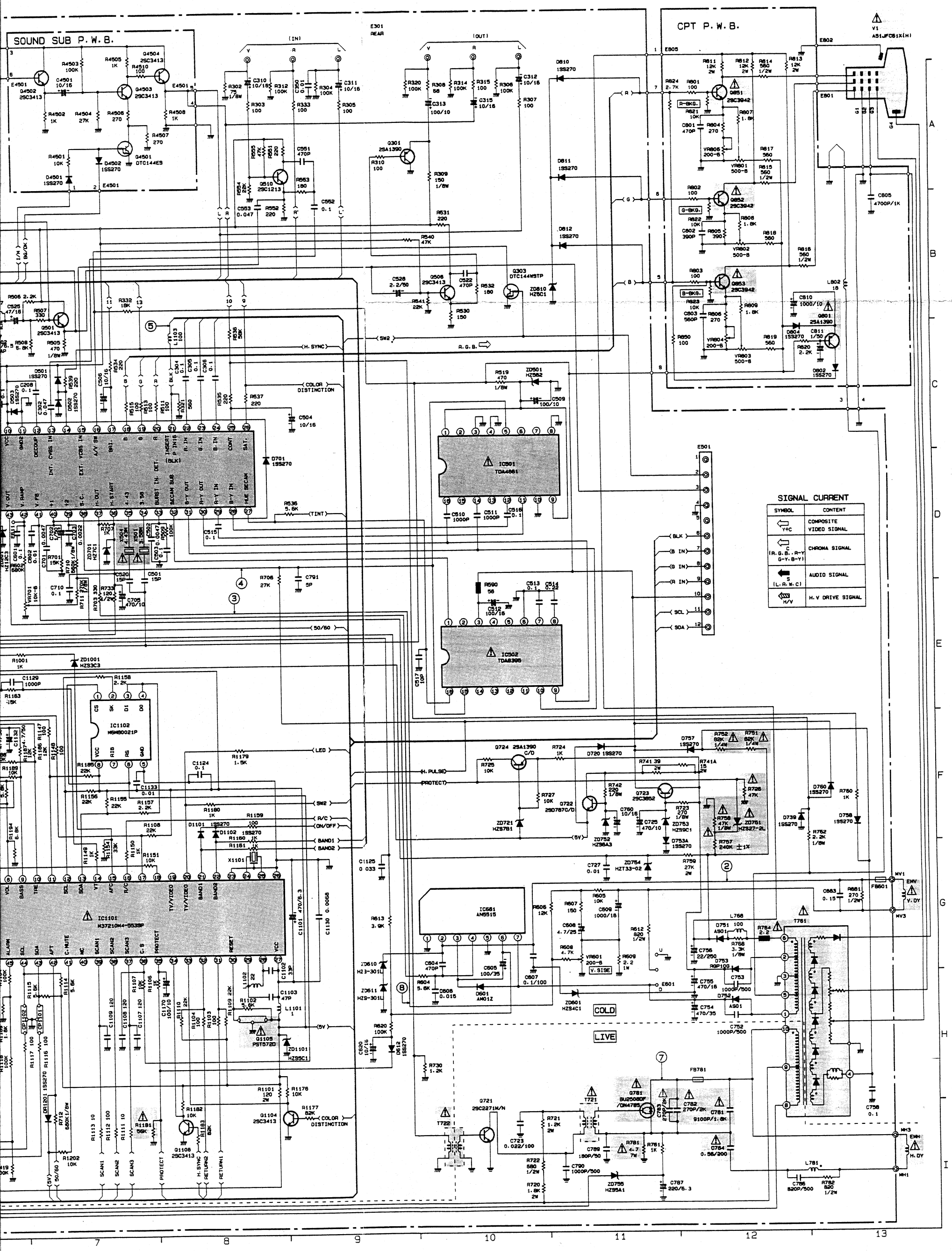


- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V).
  Voltage taken on a complex color bar signal including a standard color bar signal.

MAIN P.W.B. (for 191, 192, 192S)



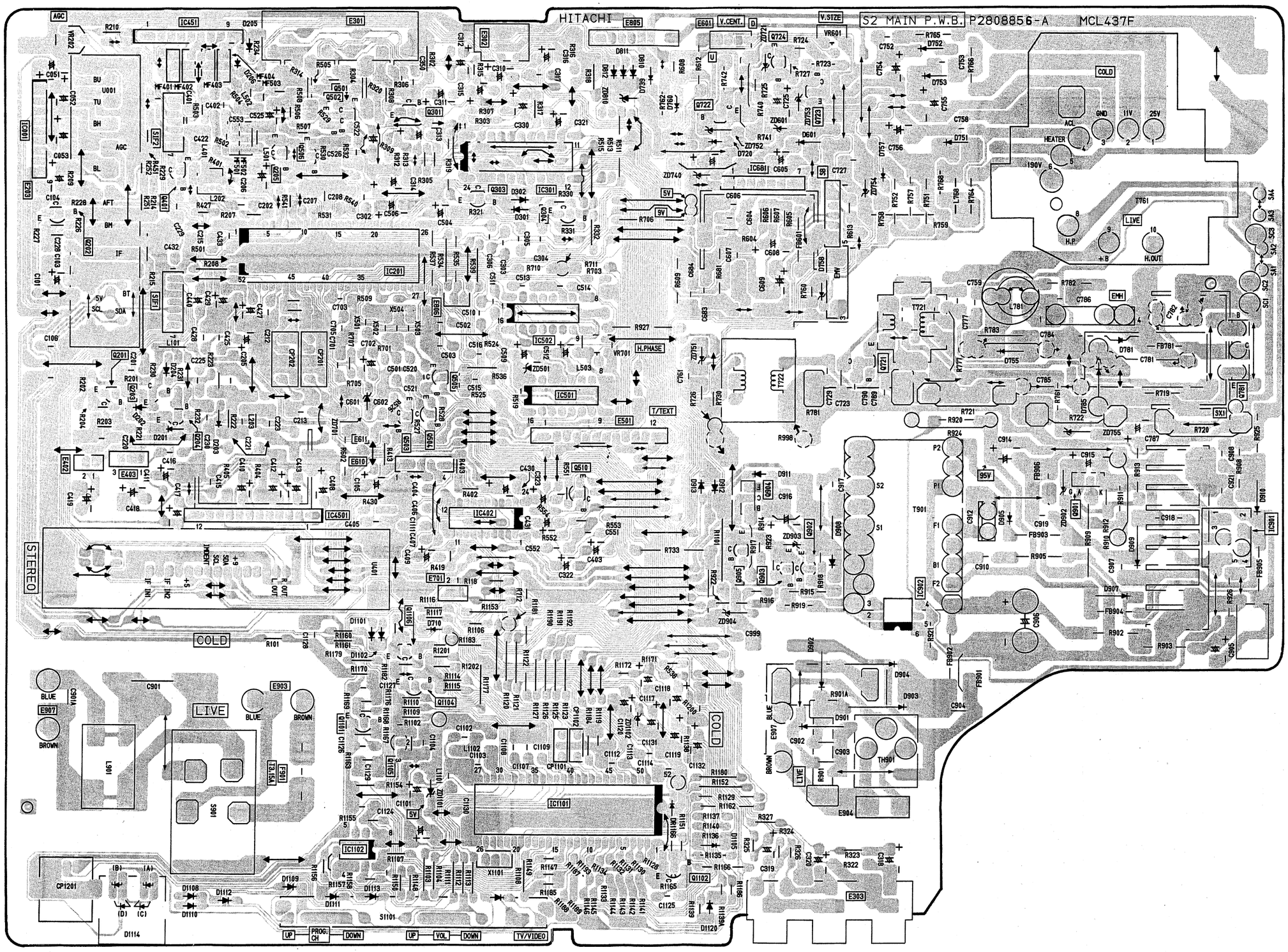
PRODUCT SAFETY NOTE : Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.



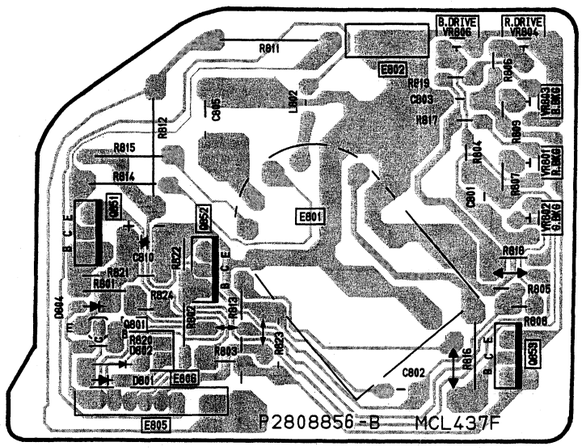
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V).
  Voltage taken on a complex color bar signal including a standard color bar signal.

PRINTED WIRING BOARD

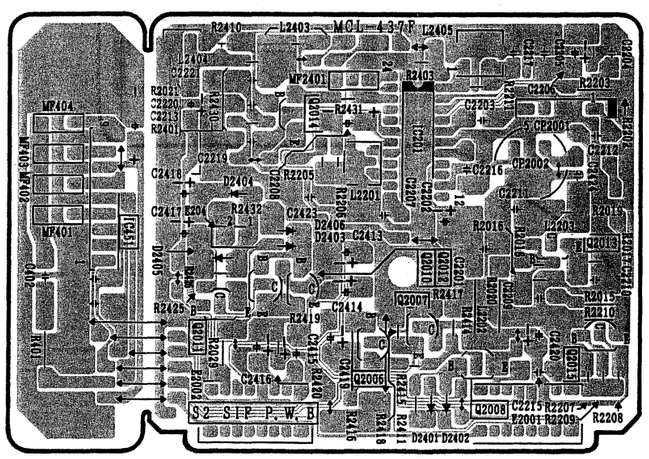
MAIN P.W.B.



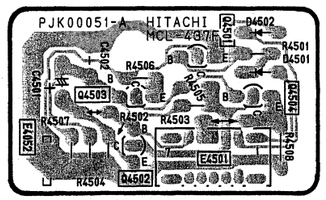
CPT P.W.B.



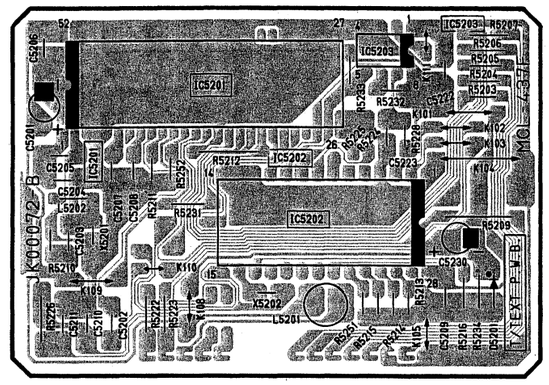
SIF P.W.B. (for 081,081S)



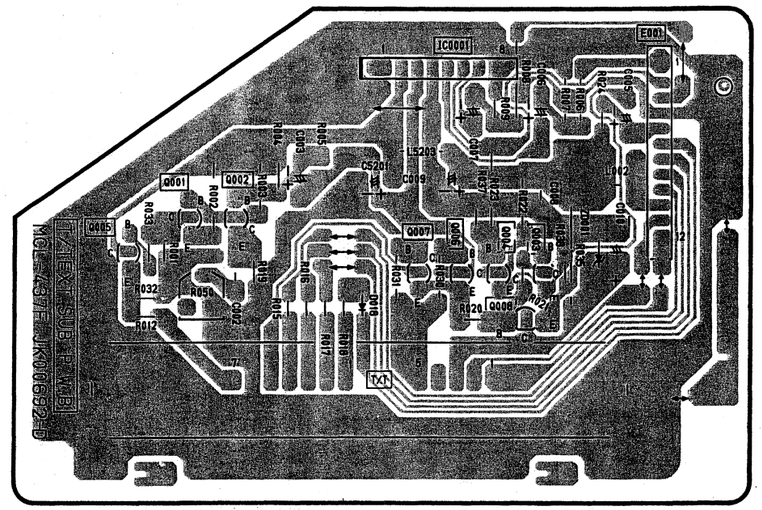
SOUND SUB P.W.B. (for 191,192,192S)



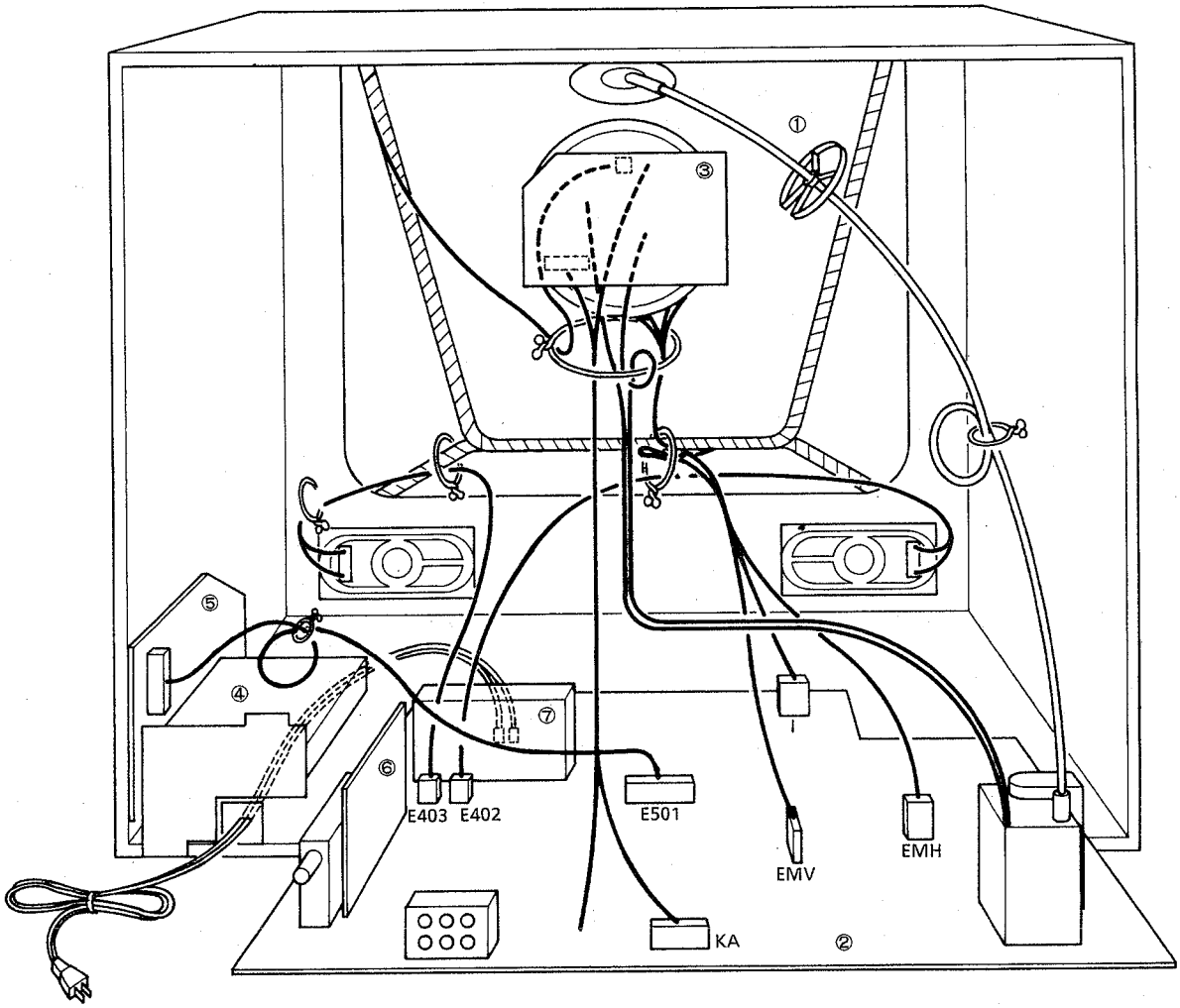
TELETEXT P.W.B. (for 081,081S)



TELETEXT SUB P.W.B. (for 081,081S)



WIRING DIAGRAM



①	Adjust the position so that the anode lead does not touch the DY
②	Main P.W.B.
③	CPT P.W.B.
④	TELETEXT P.W.B.
⑤	TELETEXT SUB P.W.B.
⑥	SIF P.W.B.
⑦	NICAM P.W.B.

REPLACEMENT PARTS LIST

PRODUCT SAFETY NOTE : Components maked with a ⚠ have special characteristics important to safety.
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ABBREVIATIONS	Capacitors·····	CD:Ceramic Disk, PF:Polyester Film, EL:Electrolytic, PP:Polypropylene, PR:Paper, TA:Tantalum, TM:Trimer.
	Resistors·····	CF:Carbon film, WW:Wire Would, FR:Fuse Resistor, MG:Metal Glazzed, VR:Variable resistor, CC:Carbon Composition, MF:Metal Oxide Film.
	Semiconductors····	TR:Transistor, DI:Diode, ZD:Zener Diode, VA:Varistor, TH:Thermistor.

SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
C002	0890078	CD 220PF +-10% 30V (for 08*)	C208	0880016	PF 0.1MF +-10% 50V
C003	0890048	EL 100MF 10V (for 08*)	C212	0880009	PF 0.01MF +-10% 50V
C005	0890022	EL 22MF 10V (for 08*)	C213	0880001	EL 0.47MF 50V
C006	0800001	EL 0.47MF 50V (for 08*)	C215	0880016	PF 0.1MF +-10% 50V
C007	0800001	EL 0.47MF 50V (for 08*)	C220	0880009	PF 0.01MF +-10% 50V
C008	0890044	PF 0.01MF +-10% 50V (for 08*)	C2201	0880009	PF 0.01MF +-10% 50V (for 08*)
C009	0800049	EL 100MF 16V (for 08*)	C2202	0800049	EL 100MF 16V (for 08*)
C010	0800047	EL 100MF 6.3V (for 08*)	C2203	0880009	PF 0.01MF +-10% 50V (for 08*)
C011	0890071	CD 56PF +-10% 50V (for 08*)	C2204	0880009	PF 0.01MF +-10% 50V (for 08*)
C051	0800015	EL 10MF 16V	C2205	0890076	CD 150PF +-10% 50V (for 08*)
C052	0800015	EL 10MF 16V	C2206	0800277R	EL 0.47MF 50V (for 08*)
C053	0800015	EL 10MF 16V	C2207	0880014	PF 0.047MF +-10% 50V (for 08*)
C101	0800048	EL 100MF 10V	C2208	0800001	EL 0.47MF 50V (for 08*)
C102	0880018	PF 0.22MF +-10% 50V	C2209	0880009	PF 0.01MF +-10% 50V (for 08*)
C103	0880009	PF 0.01MF +-10% 50V	C221	0880009	PF 0.01MF +-10% 50V
C104	0800015	EL 10MF 16V	C2210	0890087	CD 1000PF +-10% 50V (for 08*)
C1101	0800072	EL 470MF 6.3V	C2211	0890087	CD 1000PF +-10% 50V (for 08*)
C1102	0890067	CD 33PF +-5% 50V	C2212	0880009	PF 0.01MF +-10% 50V (for 08*)
C1103	0890069	CD 47PF +-5% 50V	C2215	0880009	PF 0.01MF +-10% 50V (for 08*)
C1107	0890075	CD 120PF +-5% 50V	C2216	0880009	PF 0.01MF +-10% 50V (for 08*)
C1108	0890075	CD 120PF +-5% 50V	C2219	0880009	PF 0.01MF +-10% 50V (for 08*)
C1109	0890075	CD 120PF +-5% 50V	C2220	0880009	PF 0.01MF +-10% 50V (for 08*)
C1111	0880016	PF 0.1MF +-10% 50V	C225	0880009	PF 0.01MF +-10% 50V
C1117	0800003	EL 1MF 50V	C230	0880009	PF 0.01MF +-10% 50V
C1118	0800003	EL 1MF 50V	C240	0880009	PF 0.01MF +-10% 50V
C1119	0800003	EL 1MF 50V	C2413	0800015	EL 10MF 16V (for 08*)
C1120	0800007	EL 3.3MF 50V	C2414	0800015	EL 10MF 16V (for 08*)
C1124	0880016	PF 0.1MF +-10% 50V	C2415	0800015	EL 10MF 16V (for 08*)
C1125	0880013	PF 0.033MF +-10% 50V	C2416	0800015	EL 10MF 16V (for 08*)
C1126	0890122R	CD 39PF +-5% 50V	C2417	0800015	EL 10MF 16V (for 08*)
C1127	0880014	PF 0.047MF +-10% 50V	C2418	0800049	EL 100MF 16V (for 08*)
C1128	0880014	PF 0.047MF +-10% 50V	C2419	0800015	EL 10MF 16V (for 08*)
C1129	0880003	PF 1000PF +-10% 50V	C2420	0800049	EL 100MF 16V (for 08*)
C1130	0880008	PF 6800PF +-10% 50V	C2423	0880009	PF 0.01MF +-10% 50V (for 08*)
C1131	0800012	EL 4.7MF 50V	C2424	0880009	PF 0.01MF +-10% 50V (for 08*)
C1132	0800012	EL 4.7MF 50V	C250	0890118	CD 22PF +-5% 50V
C1133	0880009	PF 0.01MF +-10% 50V	C302	0880014	PF 0.047MF +-10% 50V (for 19*)
C1135	0880009	PF 0.01MF +-10% 50V	C304	0880016	PF 0.1MF +-10% 50V
C1170	0800048	EL 100MF 10V	C305	0880016	PF 0.1MF +-10% 50V
C201	0890087	CD 1000PF +-10% 50V	C306	0880016	PF 0.1MF +-10% 50V
C202	0890087	CD 1000PF +-10% 50V	C310	0800015	EL 10MF 16V
C205	0800003	EL 1MF 50V	C311	0800015	EL 10MF 16V
C206	0800087	EL 2200MF 16V	C312	0800015	EL 10MF 16V
C207	0880016	PF 0.1MF +-10% 50V	C313	0800048	EL 100MF 10V

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SYMBOL NO.	PART NO.	DESCRIPTION
C791	0890055	CD 5PF +-0.25% 50V
C801	0890083	CD 470PF +-10% 50V
C802	0890082R	CD 390PF +-10% 50V
C803	0890084	CD 560PF +-10% 50V
C805	0245612	CD 4700PF +-10% 1KV
C810	0800359R	EL 1000MF 10V
C811	0800003	EL 1MF 50V
⚠C901	0262773	PP 0.1MF +-20% 250V
C902	0248593F	CD 4700PF +80-20% 250V
C903	0248593F	CD 4700PF +80-20% 250V
C904	0248594F	CD 0.01MF +-80-20% 250V
C905	0255507	EL 22MF 160V
C906	0284511	EL 330MF 350V
C907	0245608	CD 100 PF +-10% 1000V
C908	0243504	CD 180PF +-10% 500V
C910	0880062	PF 0.22MF +-10% 50V
C912	0244721	CD 470PF +-10% 2KV
C914	0258129	EL 220MF +-20% 100V
C915	0800015	EL 10MF 16V
C916	0800087	EL 2200MF 16V
C917	0243504	CD 180PF +-10% 500V
C918	0890029	CD 390PF +-10% 50V
C919	0245605	CD 470PF +-10% 1KV
C920	0245605	CD 470PF +-10% 1KV
C921	0247842	CD 33PF +-5% 500V
⚠C998	0249498	CD 1000PF 4000V
⚠C999	0247974	CD 2200PF +-80-20%
R001	0700029	CF 150 OHM +-5% 1/16 (for 08*)
R001	0700053	CF 8.2K OHM +-5% 1/16W
R002	0700029	CF 150 OHM +-5% 1/16 (for 08*)
R003	0700034	CF 330 OHM +-5% 1/16 (for 08*)
R004	0700049	CF 4.7K OHM +-5% 1/16 (for 08*)
R005	0700047	CF 3.3K OHM +-5% 1/16 (for 08*)
R006	0700032	CF 220 OHM +-5% 1/16 (for 08*)
R007	0700041	CF 1K OHM +-5% 1/16 (for 08*)
R008	0700041	CF 1K OHM +-5% 1/16 (for 08*)
R009	0700041	CF 1K OHM +-5% 1/16 (for 08*)
R012	0700027	CF 100 OHM +-5% 1/16 (for 08*)
R015	0700033	CF 270 OHM +-5% 1/16 (for 08*)
R016	0700033	CF 270 OHM +-5% 1/16 (for 08*)
R017	0700033	CF 270 OHM +-5% 1/16 (for 08*)
R018	0700027	CF 100 OHM +-5% 1/16 (for 08*)
R019	0700034	CF 330 OHM +-5% 1/16 (for 08*)
R020	0700032	CF 220 OHM +-5% 1/16 (for 08*)
R021	0700032	CF 220 OHM +-5% 1/16 (for 08*)
R022	0700054	CF 10K OHM +-5% 1/16 (for 08*)
R023	0700054	CF 10K OHM +-5% 1/16 (for 08*)
R030	0700032	CF 220 OHM +-5% 1/16 (for 08*)
R031	0700032	CF 220 OHM +-5% 1/16 (for 08*)
R032	0700029	CF 150 OHM +-5% 1/16 (for 08*)
R033	0700027	CF 100 OHM +-5% 1/16 (for 08*)
R035	0110207	CF 27 OHM +-5% 1/16 (for 08*)
R037	0700054	CF 10K OHM +-5% 1/16 (for 08*)
R038	0700041	CF 1K OHM +-5% 1/16 (for 08*)
R050	0150262	VR 2K OHM-B (for 08*)
R1001	0700041	CF 1K OHM +-5% 1/16W
R101	0700058	CF 22K OHM +-5% 1/16W
R1101	0110223	MF 120 OHM +-5% 2W
R1102	0700051	CF 5.6K OHM +-5% 1/16W
R1103	0700027	CF 100 OHM +-5% 1/16W
R1104	0700027	CF 100 OHM +-5% 1/16W
R1106	0700041	CF 1K OHM +-5% 1/16W
R1107	0700054	CF 10K OHM +-5% 1/16W
R1108	0700058	CF 22K OHM +-5% 1/16W
R1109	0700058	CF 22K OHM +-5% 1/16W
R1110	0700058	CF 22K OHM +-5% 1/16W
R1111	0700014	CF 100 OHM +-5% 1/16W
R1112	0700027	CF 100 OHM +-5% 1/16W
R1113	0700014	CF 100 OHM +-5% 1/16W
R1114	0700051	CF 5.6K OHM +-5% 1/16W
R1115	0700051	CF 5.6K OHM +-5% 1/16W
R1116	0700027	CF 100 OHM +-5% 1/16W
R1117	0700027	CF 100 OHM +-5% 1/16W
R1118	0700067	CF 100K OHM +-5% 1/16W
R1119	0700044	CF 1.8K OHM +-5% 1/16W
R1120	0700035	CF 390 OHM +-5% 1/16W
R1121	0700035	CF 390 OHM +-5% 1/16W
R1122	0700041	CF 1K OHM +-5% 1/16W
R1123	0700041	CF 1K OHM +-5% 1/16W
R1125	0700042	CF 1.2K OHM +-5% 1/16W
R1126	0700042	CF 1.2K OHM +-5% 1/16W
R1127	0700042	CF 1.2K OHM +-5% 1/16W
R1128	0700055	CF 12K OHM +-5% 1/16W
R1129	0700054	CF 10K OHM +-5% 1/16W
R1130	0700054	CF 10K OHM +-5% 1/16W
R1132	0700045	CF 2.2K OHM +-5% 1/16W
R1133	0700053	CF 8.2K OHM +-5% 1/16W
R1134	0700039	CF 820 OHM +-5% 1/16W
R1135	0700054	CF 10K OHM +-5% 1/16W
R1136	0700054	CF 10K OHM +-5% 1/16W
R1137	0700045	CF 2.2K OHM +-5% 1/16W
R1138	0700049	CF 4.7K OHM +-5% 1/16W
R1139	0700051	CF 5.6K OHM +-5% 1/16W
R1139A	0700042	CF 1.2K OHM +-5% 1/16W
R1140	0700054	CF 10K OHM +-5% 1/16W
R1141	0700055	CF 12K OHM +-5% 1/16W
R1142	0700052	CF 6.8K OHM +-5% 1/16W
R1143	0700054	CF 10K OHM +-5% 1/16W
R1144	0700052	CF 6.8K OHM +-5% 1/16W
R1145	0700052	CF 6.8K OHM +-5% 1/16W
R1146	0700051	CF 5.6K OHM +-5% 1/16W
R1147	0700027	CF 100 OHM +-5% 1/16W
R1148	0700027	CF 100 OHM +-5% 1/16W
R1149	0700041	CF 1K OHM +-5% 1/16W

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SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
C315	0800015	EL 10MF 16V	C5201	0890048	EL 100MF 10V (for 08*)
C322	0800015	EL 10MF 16V	C5202	0270734R	PF 0.1MF +-5% 50V (HCPS)(for 08*)
C323	0800015	EL 10MF 16V	C5203	0880003	PF 1000PF +-10% 50V (for 08*)
C350	0880009	PF 0.01MF +-10% 50V	C5204	0890063	CD 15PF +-5% 50V (for 08*)
C401	0890069	CD 47PF +-5% 50V	C5205	0890061R	CD 10PF +-0.5% 50V (for 08*)
C402	0880009	PF 0.01MF +-10% 50V	C5206	0270734R	PF 0.1MF +-5% 50V (HCPS)(for 08*)
C403	0800015	EL 10MF 16V	C5207	0270734R	PF 0.1MF +-5% 50V (HCPS)(for 08*)
C404	0880009	PF 0.01MF +-10% 50V	C5208	0270734R	PF 0.1MF +-5% 50V (HCPS)(for 08*)
C405	0270741R	PF 0.33MF +-5% 50V (HCPS)	C5209	0270734R	PF 0.1MF +-5% 50V (HCPS)(for 08*)
C406	0880009	PF 0.01MF +-10% 50V	C5210	0890118	CD 22PF +-5% 50V (for 08*)
C407	0270741R	PF 0.33MF +-5% 50V (HCPS)	C5211	0890118	CD 22PF +-5% 50V (for 08*)
C408	0800015	EL 10MF 16V	C522	0890083	CD 470PF +-10% 50V
C409	0800015	EL 10MF 16V	C5222	0270734R	PF 0.1MF +-5% 50V (HCPS)(for 08*)
C410	0800041	EL 47MF 16V	C5230	0800109	EL 1MF 50V (for 08*)
C411	0800049	EL 100MF 16V	C525	0284667R	EL 47MF 16V
C412	0800049	EL 100MF 16V	C528	0800005	EL 10MF 16V
C413	0800049	EL 100MF 16V	C551	0890083	CD 470PF +-10% 50V
C415	0880016	PF 0.1MF +-10% 50V	C552	0880016	PF 0.1MF +-10% 50V
C416	0880016	PF 0.1MF +-10% 50V	C553	0880014	CD 0.047MF +-10% 50V
C417	0800041	EL 47MF 16V	C601	0880016	PF 0.1MF +-10% 50V
C418	0800074	EL 470MF 16V	C602	0880044	PF 0.01MF +-10% 50V
C419	0800074	EL 470MF 16V	C604	0249093	CD 470PF +-5% 50V
C422	0890009	CD 0.01PF +/10% 50V	C605	0800052	EL 100MF 35V
C425	0880009	PF 0.01MF +-10% 50V	C606	0880011	PF 0.015MF +-10% 50V
C427	0800015	EL 10MF 16V	C607	0279693	PF 0.1MF +-10% 100V
C428	0880016	PF 0.1MF +-10% 50V	C608	0800009	EL 4.7MF 25V
C430	0800359	EL 1000MF 10V	C609	0800082	EL 1000MF 16V
C431	0800015	EL 10MF 16V	C620	0800015	EL 10MF 16V
C432	0880004	PF 1500PF +-10% 50V	C683	0880017	PF 0.15MF +-10% 50V
C433	0880004	PF 1500PF +-10% 50V (for 08*)	C701	0880007	PF 4700PF +-10% 50V
C433	0880005	PF 2200PF +-10% 50V (for 19*)	C702	0800003	EL 1MF 50V
C440	0284623R	EL 1MF 50V	C703	0880005	PF 2200PF +-10% 50V
C445	0800082	EL 1000MF 16V	C705	0800073	EL 470MF 10V
C4501	0800015	EL 10MF 16V (for 19*)	C710	0880016	PF 0.1MF +-10% 50V
C471	0800359	EL 1MF 10V	C723	0279851	PF 0.022MF +-10% 100V
C501	0890116	CD 15PF +-5% 50V	C725	0800352	EL 470MF 10V
C502	0880007	PF 4700PF +-10% 50V	C727	0880009	PF 0.01MF +-10% 50V
C503	0880016	PF 0.1MF +-10% 50V	C752	0244501	CD 1000PF +-10% 500V
C504	0800015	EL 10MF 16V	C753	0244501	CD 1000PF +-10% 500V
C506	0800015	EL 10MF 16V	C754	0800076	EL 470MF 35V
C509	0800048	EL 100MF 10V	C755	0800074	EL 470MF 16V
C510	0890087	CD 1000PF +-10% 50V	C756	0253973F	EL 22MF 250V
C511	0890087	CD 1000PF +-10% 50V	C758	0880016	PF 0.1MF +-10% 50V
C512	0800049	EL 100MF 16V	C760	0880015	EL 10MF 16V
C513	0880016	PF 0.1MF +-10% 50V	⚠C781	0262426F	PP 9100PF +-5% 1.8KV
C514	0880018	PF 0.22MF +-10% 50V	⚠C782	02447171	CD 270PF +-10% 2KV
C515	0880016	PF 0.1MF +-10% 50V	⚠C783	02447171	CD 270PF +-10% 2KV
C516	0880016	PF 0.1MF +-10% 50V	⚠C784	0262801F	PP 0.56MF +-5% 200V
C517	0890061	CD 10PF +-0.5% 50V	C786	02435121	CD 820PF +-10% 500V
C520	0890116	CD 15PF +-5% 50V	C787	0800056	EL 220MF 6.3V
C5200	0238296	CD 1000PF +80-20% 50V (for 08*)	C789	0890077	CD 180PF +-10% 50V
C5201	0800143	EL 100MF 6.3V (for 08*)	C790	0244501	CD 1000PF +-10% 500V

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SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
R1150	0700041	CF 1K OHM +-5% 1/16W	R214	0700057	CF 18K OHM +-5% 1/16W
R1151	0700054	CF 10K OHM +-5% 1/16W	R215	0700026	CF 82 OHM +-5% 1/16W
R1154	0700061	CF 33K OHM +-5% 1/16W	R2202	0700059	CF 27K OHM +-5% 1/16W (for 08*)
R1155	0700058	CF 22K OHM +-5% 1/16W	R2203	0700045	CF 2.2K OHM +-5% 1/16W (for 08*)
R1156	0700058	CF 22K OHM +-5% 1/16W	R2205	0700041	CF 1K OHM +-5% 1/16W (for 08*)
R1157	0700045	CF 2.2K OHM +-5% 1/16W	R2206	0700023	CF 47 OHM +-5% 1/16W (for 08*)
R1158	0700045	CF 2.2K OHM +-5% 1/16W	R2207	0700059	CF 27K OHM +-5% 1/16W (for 08*)
R1159	0700027	CF 100 OHM +-5% 1/16W	R2208	0700059	CF 27K OHM +-5% 1/16W (for 08*)
R1160	0700041	CF 1K OHM +-5% 1/16W	R2209	0700027	CF 100 OHM +-5% 1/16W (for 08*)
R1161	0700041	CF 1K OHM +-5% 1/16W	R221	0700045	CF 2.2K OHM +-5% 1/16W
R1162	0700056	CF 15K OHM +-5% 1/16W	R2210	0700035	CF 390 OHM +-5% 1/16W (for 08*)
R1163	0700056	CF 15K OHM +-5% 1/16W	R225	0700027	CF 100 OHM +-5% 1/16W
R1165	0700056	CF 15K OHM +-5% 1/16W	R230	0700041	CF 1K OHM +-5% 1/16W
R1166	0700051	CF 5.6K OHM +-5% 1/16W	R231	0700041	CF 1K OHM +-5% 1/16W
R1167	0700054	CF 10K OHM +-5% 1/16W	R232	0700054	CF 10K OHM +-5% 1/16W
R1168	0700054	CF 10K OHM +-5% 1/16W	R234	0700048	CF 3.9K OHM +-5% 1/16W
R1169	0700062	CF 39K OHM +-5% 1/16W	R240	0119687	FR 4.7 OHM +-5% 1/4W
R1170	0700062	CF 39K OHM +-5% 1/16W	R2411	0700054	CF 10K OHM +-5% 1/16W (for 08*)
R1171	0700056	CF 15K OHM +-5% 1/16W	R2414	0700034	CF 330 OHM +-5% 1/16W (for 08*)
R1172	0700054	CF 10K OHM +-5% 1/16W	R2415	0700034	CF 330 OHM +-5% 1/16W (for 08*)
R1176	0700054	CF 10K OHM +-5% 1/16W	R2416	0700027	CF 100 OHM +-5% 1/16W (for 08*)
R1177	0700066	CF 82K OHM +-5% 1/16W	R2417	0700041	CF 1K OHM +-5% 1/16W (for 08*)
R1179	0700043	CF 1.5K OHM +-5% 1/16W	R2418	0700054	CF 10K OHM +-5% 1/16W (for 08*)
R1180	0700041	CF 1K OHM +-5% 1/16W	R2419	0700067	CF 100K OHM +-5% 1/16W (for 08*)
⚠R1181	0700064	CF 56K OHM +-5% 1/16W	R2420	0700067	CF 100K OHM +-5% 1/16W (for 08*)
R1182	0700054	CF 10K OHM +-5% 1/16W	R2425	0700027	CF 100 OHM +-5% 1/16W (for 08*)
R1183	0700066	CF 82K OHM +-5% 1/16W	R2426	0700054	CF 10K OHM +-5% 1/16W (for 08*)
R1184	0700067	CF 100K OHM +-5% 1/16W	R2430	0100057	CF 470 OHM +-5% 1/8W (for 08*)
R1185	0700058	CF 22K OHM +-5% 1/16W	R2431	0700027	CF 100 OHM +-5% 1/16W (for 08*)
R1186	0700055	CF 12K OHM +-5% 1/16W	R2432	0100041	CF 100 OHM +-5% 1/8W (for 08*)
R1187	0700055	CF 12K OHM +-5% 1/16W	R250	0700032	CF 220 OHM +-5% 1/16W
R1188	0700054	CF 10K OHM +-5% 1/16W	R251	0700063	CF 47K OHM +-5% 1/16W
R1189	0700054	CF 10K OHM +-5% 1/16W	R252	0700063	CF 47K OHM +-5% 1/16W
R1194	0700052	CF 6.8K OHM +-5% 1/16W	R260	0700041	CF 1K OHM +-5% 1/16W
R1200	0700057	CF 18K OHM +-5% 1/16W	R265	0700058	CF 22K OHM +-5% 1/16W
R1202	0700041	CF 1K OHM +-5% 1/16W	R266	0700053	CF 8.2K OHM +-5% 1/16W
R1203	0700038	CF 680 OHM +-5% 1/16W	R267	0700063	CF 47K OHM +-5% 1/16W
R201	0700052	CF 6.8K OHM +-5% 1/16W	R268	0700058	CF 22K OHM +-5% 1/16W
R2015	0700031	CF 180 OHM +-5% 1/16W	R302	0100038	CF 75 OHM +-5% 1/8W
R2016	0700037	CF 560 OHM +-5% 1/16W	R303	0700027	CF 100 OHM +-5% 1/16W
R2017	0700018	CF 22 OHM +-5% 1/16W	R304	0700067	CF 100K OHM +-5% 1/16W
R2018	0700047	CF 3.3K OHM +-5% 1/16W	R305	0700027	CF 100 OHM +-5% 1/16W
R2019	0700037	CF 560 OHM +-5% 1/16W	R306	0700067	CF 100K OHM +-5% 1/16W
R202	0700042	CF 1.2K OHM +-5% 1/16W	R307	0700027	CF 100 OHM +-5% 1/16W
R2020	0114131	CF 100 OHM +-5% 1/4W	R308	0700025	CF 68 OHM +-5% 1/16W
R2021	0700036	CF 470 OHM +-5% 1/16W	R309	0100045	CF 150 OHM +-5% 1/8W
R2029	0700036	CF 470 OHM +-5% 1/16W	R310	0700027	CF 100 OHM +-5% 1/16W
R203	0100047	CF 180 OHM +-5% 1/8W	R312	0700067	CF 100K OHM +-5% 1/16W
R204	0700019	CF 27 OHM +-5% 1/16W	R314	0700067	CF 100K OHM +-5% 1/16W
R208	0700027	CF 100 OHM +-5% 1/16W	R315	0700027	CF 100 OHM +-5% 1/16W
R209	0700064	CF 56K OHM +-5% 1/16W	R320	0700067	CF 100K OHM +-5% 1/16W
R210	0700058	CF 22K OHM +-5% 1/16W	R321	0700037	CF 560 OHM +-5% 1/16W

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SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
R332	0700057	CF 18K OHM +-5% 1/16W	R5223	0700027	CF 100 OHM +-5% 1/16W (for 08*)
R333	0700027	CF 100 OHM +-5% 1/16W	R5224	0700041	CF 1K OHM +-5% 1/16W (for 08*)
R401	0700035	CF 390 OHM +-5% 1/16W	R5225	0700041	CF 1K OHM +-5% 1/16W (for 08*)
R402	0700058	CF 22K OHM +-5% 1/16W	R5226	0700081	CF 1.0M OHM +-5% 1/16W (for 08*)
R403	0700054	CF 10K OHM +-5% 1/16W	R5231	0700043	CF 1.5K OHM +-5% 1/16W (for 08*)
R404	01195051	FR 2.2 OHM +-5% 1/4W	R5232	0700049	CF 4.7K OHM +-5% 1/16W (for 08*)
R405	01195051	FR 2.2 OHM +-5% 1/4W	R5233	0700049	CF 4.7K OHM +-5% 1/16W (for 08*)
R410	0700036	CF 470 OHM +-5% 1/16W	R5234	0700067	CF 100K OHM +-5% 1/16W (for 08*)
R411	0700036	CF 470 OHM +-5% 1/16W	R5251	0700036	CF 470 OHM +-5% 1/16W (for 08*)
R419	0700067	CF 100K OHM +-5% 1/16W	R5252	0700042	CF 1.2K OHM +-5% 1/16W (for 08*)
R427	0700041	CF 1K OHM +-5% 1/16W	R529	0700027	CF 100 OHM +-5% 1/16W
R440	0700051	CF 5.6K OHM +-5% 1/16W	R530	0700029	CF 150 OHM +-5% 1/16W
R441	0700051	CF 5.6K OHM +-5% 1/16W	R531	0700032	CF 220 OHM +-5% 1/16W
R443	0119514	FR 10 OHM +-5% 1/4W	R532	0700031	CF 180 OHM +-5% 1/16W
R450	0100049	CF 220 +-5% 1/8W	R534	0700032	CF 220 OHM +-5% 1/16W
R4501	0700054	CF 10K OHM +-5% 1/16W (for 19*)	R535	0700032	CF 220 OHM +-5% 1/16W
R4502	0700041	CF 1K OHM +-5% 1/16W (for 19*)	R536	0700051	CF 5.6K OHM +-5% 1/16W
R4503	0700067	CF 100K OHM +-5% 1/16W (for 19*)	R537	0700032	CF 220 OHM +-5% 1/16W
R4504	0700059	CF 27K OHM +-5% 1/16W (for 19*)	R538	0700064	CF 56K OHM +-5% 1/16W
R4505	0700041	CF 1K OHM +-5% 1/16W (for 19*)	R539	0700032	CF 220 OHM +-5% 1/16W
R4506	0700033	CF 270 OHM +-5% 1/16W (for 19*)	R540	0700063	CF 47K OHM +-5% 1/16W
R4507	0700033	CF 270 OHM +-5% 1/16W (for 19*)	R541	0700058	CF 22K OHM +-5% 1/16W
R4508	0700041	CF 1K OHM +-5% 1/16W (for 19*)	R551	0700032	CF 220 OHM +-5% 1/16W
R451	0700041	CF 1K OHM +-5% 1/16W	R552	0700032	CF 220 OHM +-5% 1/16W
R4510	0700027	CF 100 OHM +-5% 1/16W (for 19*)	R553	0700031	CF 180 OHM +-5% 1/16W
R451A	0100035	CF 56 OHM +-5% 1/8W	R554	0700058	CF 22K OHM +-5% 1/16W
R471	0119514	FR 10 OHM +-5% 1/4W	R555	0700063	CF 47K OHM +-5% 1/16W
R502	0700031	CF 180 OHM +-5% 1/16W	R570	0700027	CF 100 OHM +-5% 1/16W
R503	0700033	CF 270 OHM +-5% 1/16W	R571	0114141	CF 270 OHM +-5% 1/4W
R504	0700045	CF 2.2K OHM +-5% 1/16W	R590	0119508	FR 56 OHM +-5% 1/4W
R505	0100057	CF 470 OHM +-5% 1/8W	R602	0179557	MG 680K OHM +-5% 1/8W
R506	0700045	CF 2.2K OHM +-5% 1/16W	R604	0700051	CF 5.6K OHM +-5% 1/16W
R507	0700034	CF 330 OHM +-5% 1/16W	R605	0700054	CF 10K OHM +-5% 1/16W
R508	0700052	CF 6.8K OHM +-5% 1/16W	R606	0700055	CF 12K OHM +-5% 1/16W
R509	0700067	CF 100K OHM +-5% 1/16W	R607	0700029	CF 150 OHM +-5% 1/16W
R511	0700027	CF 100 OHM +-5% 1/16W	R608	0700049	CF 4.7K OHM +-5% 1/16W
R513	0700027	CF 100 OHM +-5% 1/16W	R609	0119844	MF 2.2 OHM +-5% 1W
R515	0700027	CF 100 OHM +-5% 1/16W	R612	0113748	CF 820 OHM +-5% 1/2W
R519	0100057	CF 470 OHM +-5% 1/8W	R613	0700048	CF 3.9K OHM +-5% 1/16W
R5204	0700027	CF 100 OHM +-5% 1/16W (for 08*)	R620	0700067	CF 100K OHM +-5% 1/16W
R5205	0700027	CF 100 OHM +-5% 1/16W (for 08*)	R681	0113735	CF 270 OHM +-5% 1/2W
R5206	0700027	CF 100 OHM +-5% 1/16W (for 08*)	R701	0700056	CF 15K OHM +-5% 1/16W (for 19*)
R5207	0700027	CF 100 OHM +-5% 1/16W (for 08*)	R701	0700061	CF 33K OHM +-5% 1/16W (for 08*)
R5209	0700027	CF 100 OHM +-5% 1/16W (for 08*)	R703	0700034	CF 330 OHM +-5% 1/16W
R5210	0700047	CF 3.3K OHM +-5% 1/16W (for 08*)	R705	0700061	CF 33K OHM +-5% 1/16W (for 08*)
R5211	0700059	CF 27K OHM +-5% 1/16W (for 08*)	R706	0700059	CF 27K OHM +-5% 1/16W
R5212	0700035	CF 390 OHM +-5% 1/16W (for 08*)	R707	0700041	CF 1K OHM +-5% 1/16W
R5213	0700036	CF 470 OHM +-5% 1/16W (for 08*)	R710	0100131	CF 560K OHM +-5% 1/8W
R5214	0700036	CF 470 OHM +-5% 1/16W (for 08*)	R711	0100123	CF 270K OHM +-5% 1/8W
R5215	0700036	CF 470 OHM +-5% 1/16W (for 08*)	R712	0100133	CF 680 OHM +-5% 1/8W
R5216	0700036	CF 470 OHM +-5% 1/16W (for 08*)	R720	0110251	MF 1.8K OHM +-5% 2W
R5222	0700027	CF 100 OHM +-5% 1/16W (for 08*)	R721	0110247	MF 1.2K OHM +-5% 2W

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SYMBOL NO.	PART NO.	DESCRIPTION
Q007	2327753	TR 2SA1390 C/D (for 08*)
Q008	2327773	TR 2SC3413 (for 08*)
Q1101	2327773	TR 2SC3413 (C)/(D)
Q1102	2327774	TR 2SC3413 D
Q1104	2327773	TR 2SC3413 (for 08*)
⚠Q1105	2003522	IC PST572D-2
Q1106	2327773	TR 2SC3413 (C)/(D)
Q2006	2320591	TR 2SC458B/C (for 08*)
Q2007	2320591	TR 2SC458B/C (for 08*)
Q2008	2326872	TR DTC144ES (for 08*)
Q201	2320144	TR 2SC1906
Q2010	2326872	TR DTC144ES (for 08*)
Q2011	2320637	TR 2SA673C/D (for 08*)
Q2012	2326872	TR DTC144ES (for 08*)
Q2013	2320144	TR 2SC1906 (for 08*)
Q2014	2320591	TR 2SC458B/C (for 08*)
Q2015	2320144	TR 2SC1906 (for 08*)
Q203	2326875	TR DTC144WSTP
Q204	2327774	TR 2SC3413 D
Q205	2327774	TR 2SC3413 D
Q301	2327753	TR 2SA1390 (C)/(D)
Q303	2326875	TR DTC144WSTP
Q401	2327773	TR 2SC3413 (C)/(D)
Q4501	2326873	TR DTC144ES (for 19*)
Q4502	2327773	TR 2SC3413 (C)/(D) (for 19*)
Q4503	2327773	TR 2SC3413 (C)/(D) (for 19*)
Q4504	2327773	TR 2SC3413 (C)/(D) (for 19*)
Q501	2327773	TR 2SC3413 (C)/(D)
Q502	2327773	TR 2SC3413 (C)/(D)
Q506	2327773	TR 2SC3413 (C)/(D)
Q507	2327753	TR 2SA1390 (C)/(D)
Q510	2320647	TR 2SC1213C/D SI 80MHZ 400MW
Q721	2321992	TR 2SC2271(M/N) SI 50MHZ 750MW
Q722	2323052	TR 2SD787(D/E) SI 80MHZ 0.9W
Q723	2312171	TR 2SC3852 SI 80MHZ 0.9W
Q724	2327753	TR 2SA1390 (C)/(D)
⚠Q781	2315161	TR BU2508DF (HCPS)
⚠Q801	2327754	TR 2SA1390 D
⚠Q851	2312371	TR 2SC3942
⚠Q852	2312371	TR 2SC3942
⚠Q853	2312371	TR 2SC3942
⚠Q901	2326631	THYRISTOR CR5AS-8
Q902	2327754	TR 2SA1390 D
Q903	2327773	TR 2SC3413 (C)/(D)
Q904	2315933	TR 2SB1548A-P/Q (HCPS)
Q905	2320647	TR 2SC1213C/D SI 80MHZ 400MW
DR1166	23383211	DI 1SS270
DR1201	23383211	DI 1SS270
D018	23383211	DI 1SS270 (for 08*)
D1101	23383211	DI 1SS270
D1102	23383211	DI 1SS270
D1105	23383211	DI 1SS270

SYMBOL NO.	PART NO.	DESCRIPTION
D1108	23383211	DI 1SS270
D1109	23383211	DI 1SS270
D1110	23383211	DI 1SS270
D1111	23383211	DI 1SS270
D1112	23383211	DI 1SS270 (for 19*)
D1113	23383211	DI 1SS270
D1114	2339691	LED SLH-56VC77F
D1121	23383211	DI 1SS270
D1122	23383211	DI 1SS270
D1124	23383211	DI 1SS270
D1125	23383211	DI 1SS270
D1126	23383211	DI 1SS270
D201	23383211	DI 1SS270
D202	23383211	DI 1SS270
D205	23383211	DI 1SS270
D206	23383211	DI 1SS270
D2401	23383211	DI 1SS270
D2402	23383211	DI 1SS270
D2403	23383211	DI 1SS270
D2404	23383211	DI 1SS270
D2405	23383211	DI 1SS270
D2406	23383211	DI 1SS270
D401	2333001	DI RU2M
D4501	23383211	DI 1SS270
D4502	23383211	DI 1SS270
D501	23383211	DI 1SS270
D502	23383211	DI 1SS270
D503	23383211	DI 1SS270
D5201	23383211	DI 1SS270 (for 08*)
D601	23394911	DI AM01Z
D612	23383211	DI 1SS270
D720	23383211	DI 1SS270
D739	23383211	DI 1SS270
D751	23394821	DI AS01 (400V)
D752	23394821	DI AS01 (400V)
D753	23439411	DI RGP10G-6038G23
D753A	23383211	DI 1SS270
D757	23383211	DI 1SS270
D758	23383211	DI 1SS270
D760	23383211	DI 1SS270
D802	23383211	DI 1SS270
D804	23383211	DI 1SS270
D810	23383211	DI 1SS270
D811	23383211	DI 1SS270
D812	23383211	DI 1SS270
⚠D901	2342711	DI EM2A
⚠D902	2342711	DI EM2A
⚠D903	2342711	DI EM2A
⚠D904	2342711	DI EM2A
⚠D905	2349971	DI FMG-G2CS
D907	2343961	DI MPG06D
D908	2333001	DI RU2M

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SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
R722	0113746	CF 680 OHM +-5% 1/2W	R908	0113701	CF 10 OHM +-5% 1/2W
R723	0100051	RD 5.6K OHM +-5% 1/16W	⚠R909	0194068	WW 1 OHM +-5% 2W
R724	0700041	CF 1K OHM +-5% 1/16W	⚠R910	0110275	MF 18K OHM +-5% 2W
R725	0700054	CF 10K OHM +-5% 1/16W	⚠R911	0700043	CF 1.5K OHM +-5% 1/16W
⚠R726	0700063	CF 47K OHM +-5% 1/16W	R912	0700041	CF 1K OHM +-5% 1/16W
R727	0700054	CF 10K OHM +-5% 1/16W	R913	0700039	CF 820 OHM +-5% 1/16W
R730	0700042	CF 1.2K OHM +-5% 1/16W	R914	0110135	MF 390 OHM +-5% 1W
R733	0113727	CF 120 OHM +-5% 1/2W	R915	0114165	CF 1.5K OHM +-5% 1/4W
R741	0110211	MF 39 OHM +-5% 2W	R916	0700049	CF 4.7K OHM +-5% 1/16W
R741A	0110201	MF 15 OHM +-5% 2W	R917	0700054	CF 10K OHM +-5% 1/16W
R742	0100049	CF 220 OHM +-5% 1/8W	R918	0700029	CF 150 OHM +-5% 1/16W
⚠R751	01142231	CF 82K OHM +-5% 1/4W	R919	0100077	CF 3.3K OHM +-5% 1/8W
⚠R752	01142231	CF 82K OHM +-5% 1/4W	R920	0100121	CF 220K OHM +-5% 1/8W
⚠R757	0118970M	MF 240K OHM +-5% 1/16W	R921	0100123	CF 270K OHM +-5% 1/8W
⚠R758	0119647	MF 47K OHM +-5% 1/8W	R922	0700054	CF 10K OHM +-5% 1/16W
R759	0110279	MF 27K OHM +-5% 2W	R923	0700049	CF 4.7K OHM +-5% 1/16W
R760	0700041	CF 1K OHM +-5% 1/16W	R924	0110275	MF 18K OHM +-5% 2W
R761	0700041	CF 1K OHM +-5% 1/16W	R925	0113701	CF 10 OHM +-5% 1/2W
R762	0100073	CF 2.2K OHM +-5% 1/8W	R926	0113797	CF 82K OHM +-5% 1/2W
⚠R764	01195051	FR 2.2 OHM +-5% 1/4W	R930	0700014	CF 10 OHM +-5% 1/16W
R768	0100077	CF 3.3K OHM +-5% 1/8W	⚠R998	0174704G	MF 1M OHM +-5% 1W
⚠R781	0147626	WW 4.7 OHM +-10% 7W	VR202	0150265	VR 10K OHM
R782	0113748	CF 820 OHM +-5% 1/2W	VR601	0150109	VR 200 OHM-B RS-6
R801	0700027	CF 100 OHM +-5% 1/16W	VR701	0150114	VR 10K OHM-B
R802	0700027	CF 100 OHM +-5% 1/16W	VR801	0150110	VR 500 OHM-B
R803	0700027	CF 100 OHM +-5% 1/16W	VR802	0150110	VR 500 OHM-B
R804	0700033	CF 270 OHM +-5% 1/16W	VR803	0150110	VR 500 OHM-B
R805	0700035	CF 390 OHM +-5% 1/16W	VR804	0150109	VR 200 OHM-B RS-6
R806	0700033	CF 270 OHM +-5% 1/16W	VR806	0150109	VR 200 OHM-B RS-6
R807	0700044	CF 1.8K OHM +-5% 1/16W	IC0001	2004691	IC MM1118XS
R808	0700044	CF 1.8K OHM +-5% 1/16W	⚠IC001	2004801	IC LA7920
R809	0700044	CF 1.8K OHM +-5% 1/16W	⚠IC1101	2001923	IC M37210M4-553SP (HCPS)
R811	0110271	MF 12K OHM +-5% 2W	IC1102	2381112	IC M6M80021P (MEMORY)
R812	0110271	MF 12K OHM +-5% 2W	⚠IC201	2004411	IC TDA8362 (HCPS)
R813	0110271	MF 12K OHM +-5% 2W	IC2201	2004171	IC LA7557 (for 08*)
R814	0113744	CF 560 OHM +-5% 1/2W	IC402	2004362	IC CXA1279AS
R815	0113744	CF 560 OHM +-5% 1/2W	⚠IC4501	2004022	IC AN7147N(HHEA MD)(HSCC MD)(HCPS)
R816	0113744	CF 560 OHM +-5% 1/2W	⚠IC451	2020601	IC MM1053XS (HCPS)
R817	0700037	CF 560 OHM +-5% 1/16W	⚠IC501	2003652	IC TDA4661 (HCPS)
R818	0700037	CF 560 OHM +-5% 1/16W	⚠IC502	2004431	IC TDA8395 (HCPS)
R819	0700037	CF 560 OHM +-5% 1/16W	IC5201	2009901	IC SAA5280 (for 08*)
R820	0700045	CF 2.2K OHM +-5% 1/16W	IC5202	CP00241	IC PCF84C81AP/145 (for 08*)
R821	0700054	CF 10K OHM +-5% 1/16W	IC5203	2007951	IC BR24C02
R822	0700054	CF 10K OHM +-5% 1/16W	IC681	2020631	IC AN5515 (HCPS)
R823	0700054	CF 10K OHM +-5% 1/16W	⚠IC901	2373372	MODULE STR-D5095A (HCPS)
R824	0700046	CF 2.7K OHM +-5% 1/16W	⚠IC902	2004761	IC TLP631
R850	0100041	CF 100 OHM +-5% 1/8W	Q001	2327753	TR 2SA1390 C/D (for 08*)
⚠R901	0147614	WW 1.5 OHM +-10% 7W	Q002	2327773	TR 2SC3413 (for 08*)
⚠R901A	0147616	WW 1.8 OHM +-10% 7W	Q003	2326875	TR DTC144WSTP (for 08*)
R902	0113791	CF 47K OHM +-5% 1/2W	Q004	2327773	TR 2SC3413 (for 08*)
R903	0113791	CF 47K OHM +-5% 1/2W	Q005	2327773	TR 2SC3413 (for 08*)
R905	0100063	CF 820 OHM +-5% 1/8W	Q006	2327773	TR 2SC3413 (for 08*)

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SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
E802	2661751	PLUG PIN WITH BASE			
E903	2972581	POWER SUPPLY CORD (for 19*)			
E903	2972591	POWER SUPPLY CORD (for 08*)			
E904	2661751	PLUG PIN WITH BASE			
E906	2720221	FUSE HOLDER			
E950	3721832	FASTENNER			
FBK283	2123468	FERRITE BEADS CORE LEAD 0.8			
FB601	2122653	FERRITE BEADS CORE			
FB781	2122653	FERRITE BEADS CORE			
FB901	2123468	FERRITE BEADS CORE LEAD 0.8			
FB902	2123468	FERRITE BEADS CORE LEAD 0.8			
FB903	2123468	FERRITE BEADS CORE LEAD 0.8			
FB904	2123468	FERRITE BEADS CORE LEAD 0.8			
FB905	2123468	FERRITE BEADS CORE LEAD 0.8			
FB906	2774731	FERRITE BEADS CORE			
FB907	2771892	FERRITE BEADS CORE 004			
FB908	2771892	FERRITE BEADS CORE 004			
FB909	2771892	FERRITE BEADS CORE 004			
⚠SP401	2415182	SPEAKER 90X50 (HCPS)			
⚠SP402	2415182	SPEAKER 90X50 (HCPS)			
⚠TH901	2341323	TH (HCPS)			
⚠U001	2428334	TUNER ET-575SN (HCPS)			
U4801	2575651	NICAM UNIT (for 08*)			
U701	2444948	DEFLECTION YOKE C90-21SF3 (HCPS)			
X1101	2792071	CERAMIC OSCILLATOR			
⚠X501	2791505	CRYSTAL			
⚠X504	2170043	CRYSTAL (HCPS)			
X5201	BP00031	CRYSTAL (HCPS)			
X5202	2940241	CRYSTAL 6MHz			

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SYMBOL NO.	PART NO.	DESCRIPTION
⚠D909	2342861	DI R2G
D910	2342711	DI EM2A
ZD001	2339837	ZD HZS-5C1 (for 08*)
ZD1001	2339819	ZD HZS-3C3
ZD1101	2339837	ZD HZS-5C1
ZD1102	2339812M	ZD HZS-3A2
ZD201	2331849	ZD HZ-12(C3)
ZD501	2331795	ZD HZ-5 (B2)
ZD601	2339827	ZD HZS4C1
ZD610	2339231	ZD HZS30-1L
ZD611	2339231	ZD HZS30-1L
ZD701	2331817	ZD HZ7(C)1 SI
ZD721	2339854M	ZD HZS7B1
⚠ZD751	2339222	ZD HZS27-2L
ZD752	2339843	ZD HZS6A3
ZD753	2339867	ZD HZS9C1
ZD754	2335991	ZD HZT-33
ZD755	2339831M	ZD HZS5A1-M
ZD810	2331797	ZD HZ5(C)1 SI
⚠ZD902	2331814	ZD HZ7(B)1 SI
ZD903	2339921M	ZD HZS20-1
ZD904	2339847	ZD HZS6C1
ZD905	2339231	ZD HZS30-1L
ZD906	2339231	ZD HZS30-1L
ZD907	2339851	ZD HZS7A1
⚠T721	2260221	HORIZONTAL DRIVE TRANSFORMER
⚠T722	2276081	H.DRIVE TRANSFORMER (HCPS)
⚠T761	2437351	FLYBACK TRANSFORMER HFL1430M (HCPS
⚠T901	2216331	SWITCHING TRANSFORMER (HCPS)
⚠F901	2720402	FUSE 3.15A
CP1101	2791754	DSS306-55B101M
CP1102	2791754	DSS306-55B101M
CP1201	2574761	REMOTE CONTROL RECEIVER SPS-409-1G
CP2001	2306112	SAW FILTER (HCPS) (for 08*)
CP2002	2305861	SAW FILTER (HCPS) (for 08*)
CP201	2306121	SAW FILTER (HCPS)
CP202	2306122	SAW FILTER (HCPS)
MF2401	2167211	CERAMIC FILTER (for 08*)
MF401	2167311	CERAMIC FILTER 4.5MHZ
MF402	2167211	CERAMIC FILTER
MF403	2167212	CERAMIC FILTER 6.0MHZ
MF404	2167213	CERAMIC FILTER 6.5MHZ
MF501	2167371	CERAMIC TRAP 5.5/5.74MHZ
MF502	2143472	CERAMIC TRAP
MF503	2142241	CERAMIC FILTER 4.5MHZ
L002	2123781	FILTER COIL (for 08*)
L101	2122253	LA AXIAL COIL 100 MICRO H
L1101	2123739R	RADIAL COIL (HCPS)
L1102	2122947	LA AXIAL COIL 22 MICRO H +-10%
L1103	2122956	LA AXIAL COIL 100 MICRO H +-10%
L201	2123103M	LAL AXIAL COIL 10 MICRO H
L202	2146114	VARIABLE COIL (HCPS)

SYMBOL NO.	PART NO.	DESCRIPTION
L203	2123411M	AXIAL COIL (HCPS)
L204	2123411M	AXIAL COIL (HCPS)
L205	2123412M	AXIAL COIL (HCPS)
L2201	2146116	FILTER COIL (for 08*)
L2202	2122956	LAL AXIAL COIL 100MH (for 08*)
L2203	2123085	LAL AXIAL COIL (for 08*)
L2404	BJ00021	LC FILTER (for 08*)
L401	21213104M	LAL AXIAL COIL 12MH KB
L501	2123102	LAL AXIAL COIL
L502	2123104M	LAL AXIAL COIL 12MH KB
L507	2123104M	LAL AXIAL COIL 12MH KB
L5201	2123781	FILTER COIL (for 08*)
L5202	2123098	LAL AXIAL COIL 4.7 MH (for 08*)
L5203	2122956	LA AXIAL COIL 100 MH (for 08*)
L768	2122253	LA AXIAL COIL 100 MICRO H
L781	2164541	LINEARITY COIL
L802	2122099	FILTER COIL 18 MICRO H
⚠L901	2272391	LINE FILTER ELF-18
⚠L905	2276001	DEGAUSSING COIL (HCPS)
S1101	2632851	TACTO SWITCH
⚠S901	2634731	PUSH SWITCH (HCPS)
⚠V1	2356425	COLOR PICTURE TUBE A51JFC61X(H)
#	3273974	POWER SWITCH KNOB (HCPS)
#0102	8821234	3 NUT
#0103	3333922	EARTH SPRING
#0106	4520883	M3X12 SCREW WITH WASHER
#0221	3763752	SK BINDER
#0902	4520883	M3X12 SCREW WITH WASHER
#5001	3106651	FRAME ASS'Y (HCPS)
#5113	3332453	SPRING FOR KNOB
#5115	8781646	4X16 TAPPING SCREW
#5117	3273981	CONTROL KNOB (HCPS)
#5122	3815301	POWER KNOB SUPPORT
#5123	4159423	M3X12 SCREW W/WASHER
#6115	3164854	BACK COVER (HCPS)
#7101	4518376	SCREW
#7102	4159423	M3X12 SCREW W/WASHER
#7105	8781450	3X20 TAPPING SCREW
#7106	8781646	4X16 TAPPING SCREW
⚠EMV	2663132	3P PLUG PIN WITH BASE
E001	2902272	ANTENNA ADAPTOR
E001	3705233	ANODE CLAMPER
E002	3737101	PURSE LOCK 15
E004	2669221	COUPLER
E004	3731081	PURSE LOCK 10
E0701	2788084	CPT EARTH WIRE
E203	2122652	FERRITE CORE
E301	2695261	6P JACK (HCPS)
E601	2611331	ROTARY SWITCH
E611	2122652	FERRITE CORE
E701	2776242	CF MAGNET
E801	2698352	CPT SOCKET (HCPS)